

THE RELATIONSHIP BETWEEN COMPREHENSION OF
CONJUNCTIONS AND READING COMPREHENSION FOR
ADULT ENGLISH AS A SECOND LANGUAGE LEARNERS

BY

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DEDICATION

This dissertation is dedicated to my family and all my dear friends who have cheered me when things were difficult and rejoiced with me in my triumphs.

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Adults learning English as a second language (ESL) frequently fail to comprehend what they read in English. First-language research has indicated that comprehension of intrasentential relations triggered by conjunctions is related to children's reading comprehension. This researcher sought to determine whether such a relationship between reading and comprehension of conjunctions exists for ESL adult learners.

The researcher developed, test piloted, and revised the Comprehension of Conjunctions Test (CCT) to measure comprehension of conjunctive intrasentential relations. Fifty foreign students at the English Language Institute of the University of Florida responded to

the CCT, the Reading for Understanding Placement Test, and the reading and vocabulary subtest of the Test of English as a Foreign Language. The results of these tests were examined statistically.

Pearson product-moment correlations showed significant positive correlations among all three instruments. After controlling for vocabulary, significant partial correlations were found among the scores on the instruments. A repeated measure analysis of variance revealed significant differences in difficulty among the nine conjunctions tested. Mean scores for the nine conjunctions indicated that while, so, and although were the easiest conjunctions for the sample of adults. The three most difficult were before, yet, and after. Mean scores on conjunctions suggested that subordinating and coordinating conjunctions did not differ in difficulty. However, statistical evidence was insufficient to support this conclusion.

Based on these findings, the writer concluded that a relationship exists between adult ESL reading comprehension and understanding intrasentential conjunctive relations. A comparison of child first- and second-language research suggests that adults and children have analogous yet different problems with conjunctions. Evidence from previous research suggests that these differences stem from differences in cognition, experience, and maturation.

CHAPTER I INTRODUCTION

The ability to perceive relationships between and within sentences is considered essential for native English speakers' reading comprehension. One of the most common methods of expressing intrasentential relationships is through conjunctions.

The question arises whether an understanding of relationships expressed by conjunctions is related to reading comprehension in adult English-as-a-second-language (ESL) learning. Second-language reading research does not provide any insight into the relative difficulty of coordinating and subordinating conjunctions for the adult ESL learner. Nor is there any indication in second-language research of a relationship between understanding relationships expressed by conjunctions and general reading comprehension.

Statement of the Problem

Adults learning to read English as a second language often have difficulty understanding what they read. Although vocabulary knowledge is related to first-language reading comprehension (Davis, 1944, 1968; Golinkoff, 1975-76), understanding of individual words is not sufficient for reading comprehension (Oakan, Wiener, & Cromer, 1971). Similarly, good reading skills and reading comprehension in the mother tongue do not necessarily signify good reading skills and

comprehension in the target language (Clarke, 1979, 1980). Research on children has found a link between comprehension of conjunctions and reading comprehension. The problem of adult ESL reading comprehension may be related to their degree of understanding of intrasentential conjunctive relations. The main purpose of this study was to investigate the relationship between adult ESL reading comprehension and the understanding of intrasentential relationships expressed by selected coordinate and subordinate conjunctions. The investigation focused on reading comprehension of prose text as measured by the reading subtest of the Test of English as a Foreign Language (TOEFL) and the Reading for Understanding (RFU) Placement Test.

A second purpose of this investigation was to ascertain the possible differences in difficulty of some coordinate and subordinate conjunctions for adult ESL learners. Conjunctions used in this study were selected on the basis of high frequency usage.

A third purpose was to examine which specific conjunctions of those tested prove more difficult for adult ESL learners.

Significance of the Study

Information on the teaching of reading to nonnative English speakers is not readily available as evidenced by Ebel's 1980 survey of 116 reading-methods textbooks available for teacher training. Seventy-three books of the 116 were found to contain no chapters or articles on teaching reading to nonnative English speakers. Ebel found only four books with "adequate information" for ESL reading

teachers, and three which dealt exclusively with reading instruction for nonnative English speakers.

Much of what is known about how one learns to read English is based on research using native English speakers. Yet it has been argued that due to the differences between first- and second-language learners and their learning environments, an understanding of adult second-language acquisition can be derived best from second-language research. Extrapolations from first-language research to second-language learning are oversimplifications. Such extrapolations tend to overlook underlying differences between first- and second-language learning situations and between adult and child cognitive maturity. Nevertheless, first-language research has definite value for English as a second language. It serves as a basis for raising questions and provides tentative answers concerning second-language learning.

A preliminary survey conducted in the Fall of 1980 of nine reading textbooks used at the English Language Institute (ELI) of the University of Florida revealed no explanations or exercises on conjunctions related to reading comprehension. The textbooks examined by this researcher range from low-level to advance-level vocabulary and structures and are listed from beginning to advanced level as follows:

Challenge: A First Reader/Workbook by Saitz and Stieglitz (1978)

Encounters, A Basic Reader by Pimsleur et al. (1980)

Developing Reading Skills, Advanced by Hirasawa and Markstein
(1974)

Perspectives, An Intermediate Reader by Fox (1980)

Advanced Reading and Writing, Exercises in English as a Second Language by Baumwall and Saitz (1978)

Reader's Choice, A Reading Skills Textbook for Students of English as a Second Language by Baudoin et al. (1977)

Communications and Culture, A Reading-Writing Text by Gregg (1980)

Focus on Reading, A Workbook for ESL Students by McCutchan (1980)
Selected Readings in English for Students of English by Saitz and Carr (1972)

Only one textbook, Communication and Culture, provides an explanation of the relationships expressed by the conjunctive adverbs where and when. This textbook also provides exercises on using while, yet, so, because, since, and as.

A second book, Advanced Reading and Writing, presents exercises on subordination and sentence combining, but offers no explanation of the relationships expressed by conjunctions. Instead, students are free to create any acceptable structure. The teacher is left to decide which structures need to be introduced and/or require explanation.

Both of these textbooks are reading-writing texts and focus on subordination and coordination as an aspect of writing. Neither one provides exercises on the relationships expressed by conjunctions within the framework of prose text.

Similarly, Encounters offers eight exercises on when, which, but, and, before, either-or, while, and since. Most of the exercises

require students either to combine sentences or expand them. No explanations of the relationships expressed by the addition of conjunctions appear anywhere throughout the book. Again, practice is provided on the writing of sentences rather than on understanding conjunctions within written text.

The remaining six textbooks provide neither explanations nor exercises on conjunctions. Conjunctions are totally overlooked for instructional purposes.

By searching for a relationship between comprehension of conjunctions and reading comprehension for adult ESL students, the writer hoped to identify an area for further research. Thus the investigation could potentially generate more questions than it could conceivably answer. If indeed a relationship between comprehension of conjunctions and ESL reading comprehension were found, the nature of this relationship would remain unclear. It would also be unknown whether direct teaching of conjunctions can improve ESL reading comprehension or whether comprehension of conjunctions is best acquired through indirect teaching methods.

By examining the relative difficulty of certain conjunctions for the adult nonnative English speaker, the writer expected that the findings might suggest a feasible sequence for the introduction of these conjunctions in the ESL classroom. Conceivably, these findings could suggest which conjunctions might be taught, which should probably be avoided at initial stages of ESL reading instruction and then gradually introduced, and which conjunctions might need little or no explanation.

Carroll (1965) notes that one of the contributions of research to foreign language teaching is to help teachers "optimize the rate at which words, phrases, syntactical patterns, and so on, are introduced in the course of learning" (p. 277). Carroll contends that research can eliminate haphazard "trial and error methods of determining the optimal rates at which new material is to be introduced" (p. 277).

Finally, it was hoped that the findings of the present investigation might contribute to the identification of variables that affect readability of materials presented to ESL readers. While readability formulas exist for native English reading materials, none seem to exist for ESL materials. The identification of difficulty levels of variables contributing to adult ESL reading comprehension is crucial in the development of a readability formula for English as a second language.

Definition of Terms

The following terms are defined according to their usage within this study.

Adult. An individual at least 18 years of age is considered an adult for the purposes of this study.

Cognition. As used in this study, cognition is the intellectual processes by which knowledge is acquired.

Conjunction. "Conjunctions are . . . structure words . . . connectives that serve to relate or join words, phrases and sentences" (Stoodt, 1970/1971, p. 10). Conjunctions join parts of a sentence in

a meaningful association of ideas. The particular meaning of this association is determined by the specific conjunction used (Wishon & Burks, 1968, p. 488). Conjunctions include such words as and, yet, because, and while.

Coordinate structure. The coordinate structure refers to an independent clause linked by a coordinate conjunction to another independent clause of equivalent grammatical construction. Some coordinating conjunctions are and, or, and therefore.

Deep structure. According to the generative-transformational school of grammar, sentences have a deep structure and a surface structure connected by syntactic rules. The deep structure of a sentence is its underlying level of true meaning and thought. Sentences with the same deep structure refer to the same denotative information about the real world but may express it by different surface structures (MacLeish, 1972).

First language. A person's first language is his or her native language. It is the first language acquired as a child and is often referred to as the mother tongue.

Grammar. Grammar is understood as the implicit syntactic and semantic rules from which English sentences are generated.

Graphic structure, graphic representation. A graphic structure or graphic representation is the written or printed form of a language, i.e., the written word.

Phonology. Phonology is "the study of speech sounds of a given language and their function within the sound system of that language" (Hartmann & Stork, 1972, p. 175). The aim of phonology is to

determine the sound system of a language and the rules that "show the phonetic relationships that relate and contrast words and other linguistic units" (Crystal, 1980, p. 269).

Reading comprehension. Reading comprehension is the ability to extract linguistic information from written material, link it to its deep structure meaning, and perceive its relationship to its broader context. In this study, reading comprehension was indicated by scores on the reading subtest of the TOEFL and scores on the RFU Placement Test.

Second language. A second language is a language other than one's native language and used within one's sociocultural surroundings for communication with other members of the society.

Semantics. Semantics refers to the underlying meaning of words and sentences.

Subordinate structure. A subordinate structure is that clause within a sentence signaled by a subordinate conjunction and subsumed under the main clause. Subordination makes one clause within a sentence appear less important than, or dependent on, another in the same sentence (MacLeish, 1972, p. 117). Subordinate clauses "express some limiting qualification of the independent clause" (Wishon & Burks, 1968, p. 488). Some subordinating conjunctions are although, when, and before.

Surface structure. The surface structure of a sentence is the string of observable words and their ordering. "Surface structures can be interpreted by phonological rules to produce utterances" (MacLeish, 1972, p. 119). Through the application of morphographemic rules, surface structure can be transformed into writing.

Syntax. Syntax refers to the grammatical ordering of words within a sentence.

Target language. The target language is that language which is being learned.

Teaching method. A teaching method involves "a developed procedure for teaching" (Brown, 1980, p. 240).

Assumptions

This study has assumed that

1. The relationship between the phonological and graphic structures of written language is mediated by its deep structure meaning.
2. The ability to associate one sentence with another sentence having the same deep structure is indicative of comprehension.
3. Adult second-language learning is similar to, yet different from, child first-language acquisition.
4. Although many similarities exist between child second-language learning and adult second-language learning, some differences exist due to maturation and cognition.
5. Cognition is a developmental process which becomes increasingly complex and abstract from childhood to adulthood. An individual's level of cognitive development shapes his or her learning strategies and level of comprehension.

Limitations

The researcher acknowledges the following limitations of her study.

The sample for the primary study consisted of 50 students from the ELI, an intensive English program at the University of Florida for students hoping to enter American colleges or universities. A larger sample would have been preferable, but total enrollment at the Institute at the time of this investigation was 64 foreign students. Although all four groups (i.e., Beginners, Low Intermediate, Intermediate, and High Intermediate) at the ELI were tested, 14 subjects were dropped because of incomplete data.

The results are limited to adult ESL readers who have acquired at least decoding skills in English, who are literate in their first language, and who have at least college entry-level academic skills. Attempts to extend the findings of this study to other populations would yield questionable results.

Another limitation is the large number of native Spanish speakers in the sample. Although 23 countries were represented in the final sample, 29 of the 50 subjects were native Spanish speakers. Nevertheless, ten different native languages were represented, including four African languages.

Since no adequate instrument existed for measuring comprehension of conjunctions, the researcher constructed a multiple-choice paraphrase test of conjunctions. Due to the limitations of time and availability of subjects, this instrument was not previously published nor standardized. Its results cannot be generalized to other

populations exhibiting characteristics different from the sample studied. Furthermore, the instrument was limited in scope as only nine conjunctions were tested.

The selection of a standardized reading test measuring only adult ESL reading comprehension and free of other intervening variables which reflect language proficiency and cognitive development was impossible. Few standardized ESL reading tests for adults are currently available, making the selection of an adequate instrument extremely limited. Consequently, reading comprehension scores in this study probably reflect both reading comprehension and other language skills.

Because no one reading measure can reflect an individual's true reading comprehension, two instruments were used. The researcher chose the Reading Comprehension and Vocabulary subtest of the TOEFL, a standardized English language proficiency test for adults, and the RFU Placement Test, a component of the existing reading program at the ELI. The RFU Placement Test was administered to all students enrolled at the ELI. The reading coordinator at the ELI believed that this test adequately discriminates among students. However, the RFU Placement Test was designed for native English speakers in grades three through college as a measure of their ability to derive meaning from print. Thus its use with nonnative English speakers is a serious limitation of the current study.

In developing the Comprehension of Conjunctions Test (CCT), care was taken to use only high frequency words in an effort to control for vocabulary. Nonetheless, the Thorndike (1932) word frequency list is designed for native English speakers and was based on material printed

over a half-century ago. These two factors created another impediment for this study.

It was not possible to administer all three tests on the same day to all subjects nor by the same test administrator. Therefore, some contamination by communication of test content among subjects may have occurred. However, in order to minimize such contamination, each test was administered to all groups within a 24-hour period. All three tests were given within a three-week period so as to interrupt scheduled lessons minimally. Furthermore, the teachers who administered the tests were briefed prior to the test administration on testing procedures. In addition, written directions for test administration were given to these teachers. In the case of the TOEFL subtest, procedures recommended by the Educational Testing Service were followed. In this way an effort was made to control for possible contamination due to differences in test administration.

Procedures

Instrumentation

Development of the Comprehension of Conjunctions Test (CCT).

Five coordinating and five subordinating conjunctions were selected for testing. These conjunctions are among the first 500 most frequently used words in English prose according to Thorndike (1932).

A paraphrase multiple-choice format was selected. All items were to contain only high frequency words and active voice declarative sentences. Thus, both vocabulary and grammatical difficulty were held constant.

From a pool of 140 items, seven experts--three university professors and four ESL teachers--helped select the five best items for each conjunction. Using a table of random numbers, 70 items were randomly assigned to two 35-item tests parallel in form.

Piloting. Thirty-three adults in the graduate track at the ELI responded to the CCT. Although 26 subjects were native Spanish speakers, four other native languages were represented. The sample represented intermediate levels of English language proficiency.

Eighteen native English speakers enrolled in graduate courses in reading education at the University of Florida were also given the CCT. This group served as a reference group.

Care was taken to keep test administration procedures constant across groups. All nonnative subjects were tested during the test piloting by the researcher within a two-day period. On the first day of testing, all subjects were randomly assigned one form of the test and received the other form on the following day. Consequently, all subjects took both forms of the test, but the order of presentation was randomized.

After calculation of point biserial correlations and item analysis, the conjunction but was dropped from the final instrument. This conjunction proved too easy and did not discriminate among subjects.

Weak items were revised. The result was a 40-item instrument for the primary study.

Collection of the Data

All four groups at the ELI were given the CCT, the RFU Placement Test, and the TOEFL Reading Comprehension and Vocabulary subtest. The

experimental sample for the primary study consisted of 50 nonnative English speakers.

Statistical Analysis

Data on content validity and test reliability were obtained for the test pilot data. Item difficulty, item discrimination, and point biserial correlations were employed in item analysis.

While controlling for vocabulary, the Pearson product-moment correlation was computed for the reading portion of the TOEFL subtest and the RFU Placement Test in the primary study. The correlation coefficient was also computed for the CCT and the RFU Placement Test as well as for the CCT and the TOEFL reading subtest. Correlations were tested with alpha at the .05 level.

A repeated measures analysis of variance of raw scores for each set of items on the paraphrase test measuring each of the nine conjunctions, i.e., nine sets of five items each, was used in determining whether the nine conjunctions were of equal difficulty.

Pairwise comparisons of mean differences between all pairs of tested conjunctions were performed in order to determine which conjunctions were significantly different from the other conjunctions studied.

Hypotheses

The researcher tested the following null hypotheses:

1. There is no significant correlation between ESL subjects' reading comprehension as measured by the reading portion of the TOEFL Reading Comprehension and Vocabulary subtest and

- the RFU Placement Test, and their ability to identify the relationships signaled by selected conjunctions as measured by the CCT.
2. There is no significant difference in the level of difficulty of various conjunctions for adult ESL readers as measured by the CCT.
 3. There is no significant difference for adult ESL readers in the mean differences among all possible pairs of conjunctions measured by the CCT.

Organization of the Research Report

Chapter II is a review of the related literature. Chapter III describes the methodology used in this study while in Chapter IV the data are presented, analyzed, and discussed. A summary, conclusions, and recommendations for further study appear in Chapter V.

CHAPTER II REVIEW OF THE LITERATURE

From its beginnings in the late 1870's (Venezky, 1977, p. 399), research on the reading process and on reading comprehension has continued to multiply at an ever-increasing rate. There is an abundance of literature on these topics; this chapter reviews only those theories, studies, and propositions related to the topic under investigation.

The literature and research are organized into two areas: (a) deep structure and reading and (b) connecting ideas. Within each area the literature is organized in chronological order and by first and second language. A summary concludes the chapter.

Deep Structure and Reading

There has been research on the relevance of deep structure recovery to comprehension. Both first- and second-language researchers have examined the relationship between the ability to process sentences into their deep structure meaning and comprehension.

Simons (1970/1971) investigated the relevance of deep structure to reading comprehension for native English-speaking children. He administered the experimenter-designed Deep Structure Recovery Test (DSRT) to 87 fifth-grade students. The DSRT was based on the

assumption that paraphrased sentences have the same deep structure. A cloze test and the reading subtest of the Metropolitan Achievement Test (MAT) were also administered.

Simons found a significant correlation between reading comprehension and the DSRT. The deep structure test accounted for over 50% of the variance. The DSRT and the cloze test had a high correlation due to the fact that the cloze test was a measure of the dependent variable. Intelligence, word discrimination, and word knowledge were of greater importance to reading comprehension as measured by the MAT than by the deep structure test. However, the MAT probably measures each of these variables in addition to reading comprehension.

In a study conducted by Carol Chomsky (1972), 36 children from kindergarten to fourth grade were tested on their comprehension of the following deep structures: (a) easy to see, (b) to promise, (c) to ask, (d) and, and (e) although. The researcher and her assistant interviewed each child over several months. In addition, the reading background and reading activity of each child were assessed through parent interviews, child interviews, a master booklist, and Huck's Taking Inventory of Children's Literary Background (1966).

The results of Chomsky's study showed a common order of acquisition, but a variation in age of acquisition. The structures easy to see and to promise were easy for almost all children. One-third of the children successfully responded to ask statements on both a conversational task and on a picture test. Failure on ask ranged in age from 5.9 to 9.9 years with no child below 7.2 years

succeeding. Only four children correctly interpreted statements with although (e.g., "Mother scolded Gloria for answering the phone, although I would have done the same" [Chomsky, 1972, p. 14]). Twenty-three children also failed sentences with and (e.g., "Mother scolded Gloria for answering the phone, and I would have done the same" [Chomsky, 1972, p. 14]). From the evaluation of reading background and reading activity, Chomsky found that increased knowledge of language is related to exposure to complex language through reading.

Haynes (1977) conducted an investigation of the relationship between reading comprehension and deep structure recovery. He divided 315 English-speaking children in grades four, five, and six into three equal groups. One group answered the Deep Structure Recovery Test. A second group answered a paraphrase test developed by Haynes. The third group wrote responses that paraphrased prompt sentences.

Haynes (1977) found a significant positive relationship between reading comprehension and deep structure recovery under all three experimental conditions. Grade level proved to be a significant variable in deep structure recovery. The most sensitive measure of deep structure recovery proved to be the written paraphrased responses. However, this method seems to require a higher level of language competence which may explain the method's sensitivity to deep structure recovery.

Whereas Chomsky (1972) looked at native-language speakers, Van Metre (1974) examined third-grade English-Spanish bilinguals'

comprehension of deep structure meaning. A matched group of English monolinguals served as a comparison group.

Using Chomsky's (1972) interview technique, Van Metre (1974) interviewed 32 children individually and tape recorded each session for later transcription and linguistic analysis. Children scoring in the top quarter of the reading section of the MAT were grouped as Bilingual-High and Monolingual-High. Those children scoring in the bottom quarter of the reading section of the test were grouped as Bilingual-Low and Monolingual-Low. Van Metre tested the same deep structures as Chomsky.

Van Metre's (1974) analysis showed that bilingual and monolingual children who scored high in reading did significantly better on the structures tested than children who scored low. There was almost no difference between matched groups of monolinguals and bilinguals in their knowledge of test structures. Although children seemed to develop the syntactic structures at varying rates, there was evidence of an order of acquisition. Van Metre concluded that knowledge of syntax apparently plays a key role in the reading process. Children who do well in reading exhibit knowledge of complex syntactic English structures.

In 1975, d'Anglejan and Tucker reported on an experiment examining the underlying processes involved in first- and second-language learning. Sixty male Canadian military personnel enrolled at a language school were divided into three equal groups. There were two experimental groups--advanced and beginners--and a control group of randomly selected English Canadians studying French.

The subjects completed four tasks: (a) a ten-sentence test measuring comprehension of deep structure, (b) a five-sentence test measuring comprehension of deep structure relationships expressed by the verb to promise, (c) three sets of contrasting pictures and questions measuring comprehension of to ask and to tell, and (d) six sentences measuring comprehension of deep structure meaning of relationships expressed by and and although.

The findings revealed that beginners made a high proportion of errors on deep structure meaning. The advanced group showed mastery of the tasks. The researchers did not observe subjects resorting to native-language syntax as an aid to comprehension. Beginners had not mastered comprehension of deep structure relationships expressed by to promise. On the other hand, the advanced group exhibited awareness of the conflict between semantic interpretation and the syntactic form. The advanced group also showed awareness of deep structure differences between to ask and to tell. Although beginners performed as well as the advanced group on to tell sentences, beginners had a higher proportion of errors on to ask sentences. Beginners also did not seem to know the functional differences between and and although.

In general, beginners relied more on semantic than on syntactic interpretations. According to d'Anglejan and Tucker (1975), there was no evidence that the adult subjects differed in their language-learning strategies from first-language acquisition children.

Following d'Anglejan and Tucker's 1975 procedure, Cooper, Olshstein, Tucker, and Waterburg (1979) investigated the acquisition of five complex English syntactic structures by adult native speakers of Arabic and Hebrew. The four tasks presented to the Egyptian and Israeli adults measured comprehension of deep structure meaning of several parallel surface structures.

Cooper et al. (1979) found that the Egyptian and Israeli students performed similarly to each other and to the French Canadians studied by d'Anglejan and Tucker (1975). Similarities between first- and second-language structures did not seem to improve comprehension which suggests that the adult subjects in this study dealt directly with the target language rather than through translation or by comparison with their native language. The researchers also found that the less advanced students relied heavily on semantics rather than on syntax.

Summary

The research evidence reveals a relationship between comprehension of deep structure meaning and reading comprehension (Chomsky, 1972; Haynes, 1977; Simons, 1970/1971; Van Metre, 1974). For native English speakers, there is evidence of an order of acquisition of some deep structures (Chomsky, 1972; Haynes, 1977). For nonnative speakers, there is evidence of increased comprehension of deep structure meaning with increased mastery of the target language (d'Anglejan & Tucker, 1975; Van Metre, 1974). There is also evidence that second-language learners derive deep structure meaning

directly from the target language rather than through comparisons with their native language (Cooper et al., 1979; d'Anglejan & Tucker, 1975). Finally, d'Anglejan and Tucker and Cooper and associates also found that beginning second-language learners rely heavily on semantics rather than on syntax while reading.

Connecting Ideas

There is an abundance of literature on understanding how ideas are connected within and across sentences. Unfortunately, most of the literature has overlooked the ESL learner. However, in recent years, researchers have begun to look at second-language learners and their ability to perceive related ideas.

A study by Gibbons (1941) looked at the relationship between understanding of sentence elements and reading. Twenty-five third-grade children responded to five tests. Three tests were devised to measure understanding of sentences and their parts. The fourth test was a standardized reading test and the fifth was a standardized intelligence test.

Gibbons (1941) found that the best readers ranked high in ability to see relationships between parts of a sentence and in understanding sentences. Although good and poor readers were equal in intelligence, poor readers performed significantly worse on perceiving within sentence relationships and in sentence comprehension. Case studies of some subjects revealed that word recognition training did not improve reading comprehension. Poor readers failed to use within sentence relationships and context clues. Gibbons concluded "that the ability to see relationship between parts

of a sentence is an essential factor in understanding the sentence and is also related to the ability to read" (p. 46).

In 1963, O'Donnell investigated the relationship between reading comprehension and structure knowledge. O'Donnell gave 115 high school students a 50-item, three-option, multiple-choice test measuring "basic structural relationships of words in English sentences" (p. 313). Subjects also took a standardized reading test and the Iowa Grammar Information Test.

There was a high correlation (.75) between the grammar and structure tests which suggested that the two instruments measured a common factor. The correlation between level of reading comprehension and grammar (.46) was not significantly different from the correlation between reading comprehension and recognition of structural relations (.44). When vocabulary was held constant, however, there was a higher positive correlation between comprehension and structure knowledge than between comprehension and grammar. These findings suggest that awareness of intrasentence structural relations is related to native English speakers' reading comprehension. Nevertheless, a broad margin of error existed in this study since a three-option, multiple-choice test leaves room for much guessing.

A study by Katz and Brent (1968) looked at developmental differences in the understanding of connectives. These researchers studied 84 subjects from first grade, fourth grade, and college.

The first- and fourth-grade children were individually interviewed and tape recorded. Subjects engaged in free conversation

and story-telling, evaluation of sentences, and reasoning aloud their judgment of sentences. Subjects also answered a paired-sentence test measuring explicit and implicit causal constructions, causal and temporal linkages, inversion of cause-and-effect relationships, antithetic relationships, and the linguistic order of clauses and the perceptual order of events.

The results showed no significant difference between children of different ages in their preference for explicit versus implicit causal statements. Both groups of children used because to express causal relationships. Though younger children preferred and used more temporal connectives than causal connectives, they had greater difficulty in interpreting temporal relationships. Older children similarly exhibited difficulty in interpreting temporal relationships. The ability to verbalize causal and temporal relationships, to verbalize how causal and temporal relationships are expressed by connectors, and a preference for clausal order to follow temporal order apparently increased between ages 6 to 12. However, the preference for parallel clausal-temporal order seemed to decrease after age 12.

Robertson (1968) investigated the reading comprehension of connectives by children. After analyzing connectives in basal readers and the sentence structures in which they appeared, Robertson developed the Connective Reading Test and administered it to 402 children in grades four to six.

The statistical analysis revealed that both grade and sex affected test scores. As grade level increased, understanding of

test items and of the connectives tested also increased.

Comprehension of however, thus, which, although, and yet was low.

Because these connectors are more likely to appear in formal writing than in informal discourse, these results probably reflect a difference in exposure to formal discourse rather than any inherent difficulty of the connectors. Robertson (1968) also found a high percentage of grammatical errors and a slightly smaller percentage of errors due to inappropriate connectors.

At Ohio State University, Stoodt (1970/1971, 1972) studied the relationship between reading comprehension and understanding of conjunctions for 95 fourth-grade students. She developed the multiple-choice Comprehension of Conjunctions Test and the Cloze Comprehension of Conjunctions Test. In addition to the children's scores on these tests, the data analysis included their scores on The Stanford Achievement Test and the Pintner Mental Ability Test.

Analysis of variance for each of the three cloze test passages was significant. The conjunctions when, so, but, or, where, while, how, that, than, and if proved significantly easy. Readability was controlled in the three passages and thus did not contribute to the results. The findings did suggest a relationship exists between understanding of conjunctions and reading comprehension for fourth-grade children.

Rodgers (1974) reported the findings of a study on first-grade children's comprehension of connectives. He and Slade found that two-thirds of the 74 children studied understood and, but, if, so, and because (in initial sentence position), but failed to comprehend

in spite of, yet, for (meaning because), although, nevertheless, still, thus, and however. About half of the children understood although, consequently, unfortunately, and even if. About half of the children understood although and because in medial position.

Rodgers (1974) then examined 35 textbooks used in sixth- and 12th-grade social studies, science, geography, history, biology, chemistry, and physics. He read 20% of all print pages in each book and discovered that the connective load varied with the subject matter. The most frequent connectors for the twelfth grade included but, when, although, because, thus, as, if, while, therefore, since, however, so, also, then, and perhaps. For the sixth grade, the most common connectives, in order of frequency, were but, if, when, because, as, then, even, also, perhaps, however, although, while, for example, since, yet, so that, such as, too, until, and whether.

These findings demonstrated the pervasiveness of connectors in written text and how discursal constraints imposed by the subject matter of the text determine which connectors are used. The results also evidenced an order of acquisition of connectors for native English speakers--a finding supported by other research studies reviewed herein.

In her study reported in Dissertation Abstracts, Grant (1979/1980) examined students' knowledge of articles, possessives, and conjunctions. She gave her Grammatical Word Inventory to 60 fifth-grade and 60 tenth-grade students of high, average, and low reading ability.

The analysis of the data showed a significant main effect for knowledge of grammatical signal words on reading comprehension.

Superior readers outperformed average readers, who in turn, outperformed low readers. In addition, there was a significant main effect for knowledge of grammatical signal words on reading level, with tenth graders performing better than fifth graders. There was evidence that independent clause connectors were significantly harder than other word classes studied.

Henderson (1979/1980) investigated the use of connectives by fluent and not-so-fluent readers. As reported in Dissertation Abstracts (the study being unavailable to this researcher), she developed the Connectives Competence Test to measure college freshmen's control over the use of connectives. A questionnaire provided additional information on the 120 native English-speaking freshmen who participated in this study.

The findings indicated that explicit markers for additive and adversative relations were more necessary for comprehension than they were for causal and temporal relations. Henderson (1980) also found that connectives used cohesively were more helpful to fluent readers than those used structurally. Fluent readers also exhibited greater control in the use of connectives to relate information across sentences. On the other hand, poor readers were less constrained by semantic and syntactic cues. Instead, they seemed to process information sequentially rather than psycholinguistically. Poor readers' behavior revealed a lack of semantic closure, lack of syntactic closure, hypercompensation, and problems of register. Consequently, less fluent readers had greater difficulty in restoring deleted connectives than did fluent readers.

In a study by Irwin (1979), 64 fifth-grade students were randomly assigned to two groups. One group read three passages with explicit connectives; the other read three passages in an alternate version containing implicit connectives. The first experiment examined causal relations with reverse temporal order; the second investigated time-sequence relations under normal temporal order.

The results of Irwin's study revealed that the type of connective may be more important than explicitness or implicitness for native English-speaking children. Both explicit and implicit reversed time sequence were understood by the children. However, reversible causal relations were not understood even when stated explicitly.

Evidence from a study by Bebout, Segalowitz, and White (1980) suggested that native English-speaking children develop comprehension of because and so sequentially. Sixty children from kindergarten to fourth grade were tested on 24 tape recorded reversible instructions. The children demonstrated their comprehension of the instructions by manipulating four objects. Bebout et al. found that the younger children made more overall errors and more errors on temporally inverted causal sentences connected by because. This difference in errors disappeared by grade four.

Howard (1980/1983) examined connectives in 18 community college textbooks for social science, physical science, and allied health. He read 20% of the print pages in each book and listed every occurrence of connectives.

Howard (1980/1983) found that as was the most frequent connective in 10 of the books. The connective unless was the least

frequent. Furthermore, he observed that different types of connectives were used by different textbooks. Nevertheless, connectives used for clarification and contrast (for example, thus, as, such as, but, however, although, and yet) appeared most frequently in books for all three subject areas. Condition connectives (if, whether, even though, and unless) appeared least often in all three subject areas.

Johnson and Chapman (1980) reported the results of a study by Johnson investigating children's recall and judgment of causal statements. Johnson examined 36 native English-speaking children aged 6, 9, and 11. Johnson presented the children with 32 sentences linked by because, so, or and in probable and improbable event orders.

The data indicated that children preferred because to so or and for psychological causality. The six- and nine-year-olds did not attend to temporal ordering and the youngest children tended to judge all sentences as correct. The children were more likely to correctly recall because sentences than to judge them correctly; sentences with so and and were more often judged correctly than recalled correctly. Johnson and Chapman (1980) concluded that children probably understand sentences with conjunctions before they are able to produce them. They also inferred that the underlying linguistic rules governing causal sentences are not completely mastered before age 11 or 12.

The sequential development of or by native English-speaking children was probed by Braine and Romain (1981). These researchers

studied four age groups: five- to six-year-olds, seven- to eight-year-olds, nine- to ten-year-olds, and college students. Each group had 22 subjects. The researchers presented the subjects with four tasks. The first tested set union expressed by either-or. The second tested contradictions and tautologies. The third tested truth conditions for disjunction with either-or statements. The last tested reasoning with alternatives through inference with or statements.

Braine and Rumin found that even the youngest children were able to reason with alternatives. The five- to six-year-old children determined the truth condition for disjunction by examining the two sentence clauses separately and ignoring the connective. All age groups perceived contradictions; however, appropriate truth judgments appeared to begin around the ages of 7 and 8. Set union sentences with either-or were very difficult; only a few adults correctly responded to these sentences. The study evidenced an order of acquisition of causal connectives with older subjects understanding increasingly complex statements.

Price (1981/1982) attempted to discover fifth-grade students' understanding of the function of conjunctions and of the relations signaled by conjunctions. In addition, she sought to determine the effect of instruction in conjunctions on reading comprehension. Based on an analysis of two fifth-grade social science textbooks, she devised the Price Test of Conjunctions which measured comprehension of 25 conjunctions. She also developed 20 sequential lessons in identifying and using relations signaled in reading by conjunctions.

Two fifth-grade classes totaling 51 Black students served as the experimental group and 51 matched students from four classes served as the control group. Pretest and posttest scores on a standardized reading comprehension test and on the Price Test of Conjunctions were obtained for both groups.

The experimental group received 45 minutes of daily instruction for 4 weeks in identifying and using the relationships signaled by conjunctions. In addition, they continued to receive reading instruction from their regular classroom teacher.

Price (1981/1982) found that the experimental group had a higher rate of gain in reading comprehension and in understanding of conjunctions than the control group. The study did not, however, find sufficient evidence to indicate that gains in understanding and using conjunctions were related to gains in reading comprehension. The conjunctions since, that, however, for, and yet proved to be the most difficult for the experimental group.

In 1982, Bridge and Winograd tested 10 poor readers and 10 good readers in the ninth grade on a cloze passage involving referential, conjunctive, and lexical cohesion. The subjects were to read the passages aloud, supply the deleted cohesive tie, and to think aloud why they had supplied the particular word for each deletion. Scoring was based on semantic acceptability. The subjects also answered a multiple-choice test measuring understanding of the information involved in cohesive relationships.

The analysis of the data showed that good readers performed better in supplying the missing cloze deletions, in identifying

cohesive ties, and in understanding the relations expressed by the cohesive ties. Lexical deletions proved easier to replace than referential or conjunctive items. Both good and poor readers found conjunctive items more difficult than referential or lexical items. Whereas the poor readers tended to supply referential and lexical items correctly on the cloze test, they failed to identify these cohesive ties. The reverse was true for conjunctive items. In general, the subjects were aware of the cohesive relations in text and varied their use of intrasentential and intersentential information according to the type of cohesion involved.

Wishart and Smith (1982/1983) reported their study of children's understanding of connectives. They tested 15 connectives found in a history textbook. Their instrument involved selective completion and multiple-choice sentence completion.

The sample of high-ability students in third, fourth, and fifth grades at two comprehensive British schools demonstrated high comprehension of connectives in everyday contexts (i.e., in informal registers). The data analysis showed no significant difference by age, sex, or test type. There was also no correlation between understanding of connectives and the use of connectives in writing.

Bartlett (1983), as reported in Dissertation Abstracts, gave a stratified random sample of 36 sixth-grade children, representative of three reading levels, two passages to read in two different versions each. The first version was textually intact and contained explicit conjunctions. The second version had two occurrences of and, but, because, and then deleted, resulting in implicit

conjunctive relationships. After silent reading of each page, the children answered "wh" questions. The subjects' responses were written down by the experimenter and tape recorded.

Bartlett (1983) found no significant interrelationship between the three reading ability groups and implicit/explicit connectives. Nor was there a significant interrelationship between reading ability and adversative, additive, causal, and temporal conjunctions. Nevertheless, high-ability readers did perform slightly better under the explicit conjunctions condition.

The characteristics of English prose text and its implications for ESL instruction were the subject of a study by Pakseresht (1978). He analyzed essays from two college-level textbooks and from four scientific journals in order to identify some major syntactic and discoursal features.

Among the most common discoursal features noted by Pakseresht (1977/1978) were anaphoric demonstratives, anaphoric comparatives, and sentence connection indicating contrast and logical sequence. He found that cohesive, thematic, and grammaticological networks were established by the relationships between sentences. Intrasentential relations proved as significant as intersentential relations for reading comprehension.

The effect on reading comprehension of formal instruction in connectives was questioned by Soltis and Pflaum (1979). Seventh- and eighth-grade students from Hispanic, Phillipine, Black, and Anglo-American backgrounds served as subjects.

The seventh-grade group received 15 minutes of instruction and practice on identifying and using connectives in terms of their

functional meaning. The treatment lasted 7 weeks and included the conjunctive functions of addition, contrast, clarification and example, cause, consequence and exception, and condition.

The two researchers found reading comprehension and the production of connectives improved for the treatment group. Soltis and Pflaum's (1979) study indicated that reading comprehension may be improved through formal instruction on identifying connectives, their function, and their use.

Another study by Loeffler (1982) looked at native American children's understanding of grammatical conjunctions and its relationship to reading comprehension. The 34 children were fourth-, fifth-, and sixth-grade participants in Native American Enrichment Programs for reading enrichment. Trained teacher aides administered to the children a standardized reading test and Stoodt's Multiple-Choice Conjunctions Test and Cloze Comprehension of Conjunctions Test.

Loeffler (1982) found a significant correlation between understanding of conjunctions and reading comprehension for all subjects. The conjunctions that, if, so, while, how, where, yet, and or proved the most difficult for the entire sample. There were hierarchies of difficulty of conjunctions for the entire sample and for each grade level. The most difficult conjunctions were those of incorporation, illation, qualification, contrast, and alternation. Conjunctions of addition and comparison were not significantly difficult. Loeffler did note a significant positive maturational change from grade five to grade six. Moreover, there was a tendency

to move from syntactic dominance at the fourth-grade level to a semantic focus in the sixth grade.

A study by Samson (1982/1983) compared the use of connectives by native Spanish not-so-fluent readers and native English not-so-fluent readers. Samson obtained scores on a standardized reading test and on the Connective Competence Test for her 80 subjects. The 40 native Spanish speakers also responded to a Spanish version of the standardized reading test. Ten of the native English speakers and 10 of the native Spanish speakers were later interviewed individually and tape recorded. During the interviews, the subjects read aloud the connectives test and answered questions on the 32 paragraphs in the test.

Samson (1982/1983) found no significant differences between the native English speakers and the native Spanish speakers on overall scores on the connectives test. There was no correlation between the English and Spanish versions of the reading test. The native Spanish speakers were poor readers in both languages. All subjects tended to replace deletions in the cloze conjunctions test with words that violated discoursal constraints. They supplied words that were appropriate in an informal context, but not in formal writing. Responses on temporal and causal items seemed to reflect difficulty with language expression or in understanding expressed relationships. However, the inability to supply an appropriate connective did not always adversely affect reading comprehension. This fact may have reflected a receptive comprehension of implicit relationships and a lack of appropriate vocabulary. The readers' errors pointed to both

a lack of content knowledge and difficulty with sequential material and analogies.

Summary

The research evidence provided by Howard (1980/1983), Rodgers (1974), and Pakseresht (1977/1978) reflects the widespread use of connectors in written text regardless of content matter. First- and second-language research shows an apparent order of acquisition and a hierarchy of difficulty for conjunctions and conjunctive relationships (Bebout et al., 1980; Braine & Romain, 1981; Grant, 1979/1980; Johnson & Chapman, 1980; Katz & Brent, 1968; Loeffler, 1982; Robertson, 1968; Rodgers, 1974; Stoodt, 1970/1971, 1972).

There is evidence also of a direct relationship between comprehension of conjunctions, of relationships expressed by conjunctions, and of cohesive connectors and reading comprehension for first- and second-language readers (Bridge & Winograd, 1982; Grant, 1979/1980; Henderson, 1979/1980; Loeffler, 1982). However, Bartlett (1983) found no relationship between reading ability and conjunctions for sixth-grade English speakers. Similarly, Wishart and Smith (1982/1983) failed to find a relationship between children's understanding of conjunctions and their use of conjunctions in writing. Finally, Samson (1982, 1983) noted that poor readers' comprehension is not always affected by their inability to provide appropriate conjunctions. It is possible that receptive and productive abilities in understanding and using conjunctions are not necessarily equal.

There is a lack of consensus on the importance of explicit and implicit markers for relating ideas. According to Henderson (1979/1980), college freshmen found some explicit markers more useful than others in reading. On the other hand, Bartlett (1983) found no relationship between reading ability and explicitness and implicitness of markers. Irwin (1979) suggested that the type of connector may be more important than explicit or implicit markers.

Discoursal constraints imposed by informal and formal contexts appear to be a significant factor in correct usage and interpretation of connectors. Thus, Wishart and Smith (1982/1983) found children able to understand connectors in informal contexts. Samson (1982/1983) similarly observed that ESL unskilled readers violated discoursal constraints by supplying informal connectors in formal prose texts.

Finally, direct instruction in identifying conjunctions, their functions, and their use may improve comprehension of conjunctions, the relationships they express, and reading comprehension. Price (1981/1982) found improvement in these skills for native English-speaking children following formal instruction; Soltis and Pflaum (1979) had similar findings with seventh- and eighth-grade children from several ethnic backgrounds. Perhaps such instruction provides needed exposure to connectors in formal contexts unfamiliar to poor readers.

Overview

The research evidence indicates that there is a relationship between perceiving deep structure meaning and reading comprehension.

There is an apparent order of acquisition for acquiring deep structure meaning from varying surface structures. Furthermore, comprehension of deep structure meaning seems to improve for the ESL learner as language mastery increases.

From the research reviewed, it is clear that connectors are widely used in printed materials irrespective of content matter. However, discoursal constraints imposed by formal discourse play an important role in the appropriate usage and interpretation of connectors. There is evidence of an order of acquisition and a hierarchy of difficulty for conjunctions and conjunctive relations. Research on reading comprehension and understanding how ideas are linked provides contradictory findings. Nevertheless, Price (1981/1982) and Soltis and Pflaum (1979) found that formal instruction on conjunctions is mirrored in improved reading comprehension. There is a lack of consensus on the role played by explicit connective markers in reading; however, Irwin (1979) suggested that the type of connector may be more relevant to reading comprehension than implicit or explicit markers.

The question remains whether reading comprehension is directly related to comprehension of conjunctions and the relationships they express. Furthermore, it is unknown whether coordinate and subordinate conjunctions are equally easy for adult ESL learners. Most of the research has been conducted with children or with adult native English speakers. There is an obvious need for second-language adult research in reading.

The present study has attempted to find evidence of a relationship between reading comprehension and understanding of how conjunctions link ideas within sentences for adult ESL learners. The prevalence of conjunctions in formal written text suggests that conjunctions should be investigated in second-language research as a possible obstacle to reading comprehension.

Chapter III presents the methodology employed by this researcher in her attempt to discover a link between adult ESL reading comprehension and comprehension of conjunctive relations within sentences.

CHAPTER III METHODOLOGY

The discussions in Chapters I and II support a need for research on adult ESL. Most research on second-language has focused on child learners. The challenge remains of identifying specific factors which are peculiar to adult ESL reading comprehension. The research and literature reviewed in Chapter II suggest that reading comprehension is related to the ability to comprehend how words are related within a sentence. Therefore, the present research examined adult ESL reading comprehension and its relation to the understanding of some conjunctions which define intrasentential relations. This chapter describes the procedures, materials, instrumentation, sample population, and design that were used in testing the following hypotheses:

1. There is no significant correlation between ESL subjects' reading comprehension as measured by the reading portion of the TOEFL Reading Comprehension and Vocabulary subtest and the RFU Placement Test, and their ability to identify the relationships signaled by selected conjunctions as measured by the CCT.
2. There is no significant difference in the level of difficulty of various conjunctions for adult ESL readers as measured by the CCT.

3. There is no significant difference for adult ESL readers in the mean differences among all possible pairs of conjunctions measured by the CCT.

Instrumentation

To develop the Comprehension of Conjunctions Test the researcher drew from first- and second-language research findings and Burt and Kiparsky's (1972) book on areas of difficulty for ESL learners. From these sources, the following ten conjunctions were selected: but, although, however, yet, before, after, while, when, so, and therefore. These words appear within the first 1,000 words on Thorndike's (1932) frequency list. Stoodt's (1970/1971) study indicated that native English-speaking children found but, so, and while easy to understand. Evidence from first- and second-language research has shown that children have difficulty with however, although, yet, and so (Loeffler, 1982; Price, 1981/1982; Robertson, 1968).

The CCT was intended to measure the adult nonnative English speaker's ability to perceive relationships signaled by conjunctions within sentences. Because paraphrased sentences have the same deep-structure meaning, the CCT was designed as a paraphrase test. The conjunctive sentences appearing in the stem were paraphrased in the correct alternatives by the substitution of a synonymous word or phrase for the conjunction. In the distractors, the conjunction being tested was substituted by an unequivalent word or phrase. Within an

item, the words or phrases used as substitutes were either all equal in number of words or in pairs having an equal number of words. By these means, sentence structure remained consistent throughout the test (see Appendix C).

The researcher preferred a multiple-choice format for the CCT rather than a sentence-completion format. Sentence completion measures productive language skills. However, the CCT was intended to measure comprehension of conjunctive relationships. Comprehension does not require productive ability. Similarly, multiple-choice items do not require productive language ability.

The CCT was designed to measure understanding of within-sentence conjunctive relationships. Complete sentences present words in a series of interrelated ideas. Therefore, each alternative on the CCT consisted of a complete sentence rather than a single word or phrase.

Vocabulary difficulty was of paramount importance in the development of the CCT. In order to control vocabulary difficulty, all words in the CCT were within the first 1,500 most frequently used words of the English language according to Thorndike's (1932) frequency list. Words ranged from the first 500 to the first 15,000 most commonly occurring words. However, the words television and airplane are not on Thorndike's list and the frequency ratings for names of people were not determined. Ninety-seven and seven-tenths percent of the words on the CCT were among the first 5,000 most frequent words, 84.2% were among the first 1,000, and 73.7% were among the first 500.

These percentages were obtained by recording the occurrence on the CCT of each of Thorndike's ratings. Words appearing both in the

stem and its alternatives were recorded only once per test item. Based on this nonrepetitive word-rating count, the average word frequency was in the first 500 words. To derive this average, the researcher converted Thorndike's rating system from 1a and 1b through 5a and 5b (where 1a = 500, 1b = 1,000, 2a = 1,500, and so forth) to .5 and 1.0 to 4.5 and 5.0 (where 1a = .5, 1b = 1.0, 2a = 2.5, and so forth). Commencing with rating 6 through 20 (where 6 = 6,000, 7 = 7,000, and so on), Thorndike's ratings remained unchanged. The total number of occurrences on the CCT of each of Thorndike's ratings was then multiplied by these converted ratings and the mean computed.

All items were active-voice declarative sentences; alternatives and their stems were parallel in grammatical form. The researcher avoided deletions, pronoun referents, inversion, contractions, passives, embedding, and nominalizations in as much as these features would increase sentence complexity and sentence difficulty.

In developing the CCT, this researcher avoided including the conjunctions being tested in the multiple-choice alternatives. This measure was an attempt to eliminate ambiguities in interpreting a subject's response because it would be unclear whether the answer reflected knowledge of the conjunction in the stem or in the alternative.

A pool of 140 items was constructed with 14 items for each conjunction being tested. Four teachers at the ELI individually selected from this pool what each considered the five best items for each conjunction. Three professors in Reading Education, Linguistics, and Educational Research reviewed the pool of items and suggested revisions. Criteria for the selection of best items were clarity and grammaticality.

Based on the opinions of the above-mentioned seven experts, 70 items were chosen for inclusion in the prototype. The order of presentation of the conjunctions being tested was determined by the use of a table of random numbers. Within each test item, the alternative responses were randomly ordered using the same table. This 70-item prototype was then split into two equal halves. Each half of the test had an approximately equal number of items per conjunction tested. Thus, two fairly parallel forms of the CCT were developed for test piloting.

To familiarize subjects with the test format and to clarify test procedures, the written directions for the CCT included three sample items. All directions, including the sample items, were tape recorded by a native English-speaking male ELI teacher who had radio broadcasting experience.

Pilot Study

Setting and Sample

In the spring of 1982, the CCT was test-piloted at the English Language Institute of the University of Florida. The ELI offers an intensive English program for foreign students planning to attend American colleges or universities. Students entering the program have at least a tourist-knowledge of English. None of the students enrolled at the ELI had attained a passing score of 500 on TOEFL, a requirement for admission to many American institutions of higher education.

The sample for the test pilot consisted of 33 adults in the graduate track at the ELI. This group comprised 18 low-intermediate

and 15 intermediate-level students. Five native languages were represented; there were 26 Spanish, 2 Turkish, 2 Portuguese, 2 Arabic, and 1 Urdu speaker. The large proportion of native Spanish speakers reflected the composition of the ELI student population at that time.

A sample of 18 native English speakers enrolled in graduate education courses at the University of Florida also participated. This group served as a comparison group for analysis of item discrimination, item difficulty, and ambiguities in test items.

Administration

The researcher conducted the testing in the students' regular classroom. She administered the test to the ELI group on 2 consecutive days in 50-minute class periods. The researcher also administered the two forms of the CCT to the native English speakers in their classroom. This group responded to the entire test (i.e., the two halves of the CCT) during the last hour of their three-hour class.

Both native and nonnative subjects received the two forms of the CCT in a nonselective order of presentation. The nonnative subjects received one of the two forms at random on the first day of testing and the second form on the following day. The native English subjects received test booklets with either form of the test randomly placed as the first half of the CCT. Consequently, the subjects responded to the entire 70 items.

Validity and Reliability of the CCT

The CCT was designed to measure comprehension of conjunctions in adults learning English as a second language who had received some instruction in reading and writing English. The instrument was designed for nonnative English speakers who had developed decoding skills for reading English print and had acquired a vocabulary of high-frequency words. The CCT was not intended for use with individuals having only a speaking-knowledge of the language.

All nonnative subjects in the test pilot and in the primary study participated in an intensive English program. They were receiving instruction in the four language arts of listening, speaking, reading, and writing. As part of their program, they received instruction in reading 5 days a week in 50-minute class periods.

All coordinating and subordinating conjunctions on the CCT are of common usage in the English language. They constitute a representative sample of conjunctions frequently appearing in written English.

The researcher determined split-half reliability for the entire 70-item CCT using the raw data obtained during test piloting of the nonnative subjects. Seven subjects were dropped due to their absence on one of the two testing dates.

The KR-20 for the CCT was .87, indicating that all items were strongly related to the test as a whole. The items appeared homogeneous in nature. The results of the test pilot also revealed great variability ($s^2 = 76.76$) across subjects, despite the small sample size. Thus, the test discriminated across subjects varying in their language proficiency.

Parallel form reliability was significant at the .05 level. A strong relationship ($r_{xy} = .73$) existed between the two halves of the test which suggested a great similarity in content. The one-day time lapse between test administrations for the nonnative sample did not apparently significantly affect test scores. The test proved consistent over items.

Item Analysis

The results of the test pilot provided information on item facility and item discrimination. The researcher estimated item facility based on the percentage of students responding correctly to an item. Point biserial correlations indicated item discrimination.

Kuder-Richardson 20 reliability was estimated for the entire 70 items using the scores of the nonnative speakers. The KR-20 reliability was .87 and a variance of 76.76 was obtained. Parallel forms reliability was .73. The mean score for the native speakers was 65.8 with scores ranging from 70 to 57. The variance obtained for the native speakers was 8.47. Item difficulty for both native and nonnative speakers appears in Appendix E.

Item analysis revealed that the items testing the conjunction but were too easy and did not discriminate across subjects. Therefore, the final form of the CCT did not contain any items testing the conjunction but. Instead, the conjunction but was used in the distractors.

The revised CCT did not include items with low or negative point biserial correlations. Those items with one or two distractors

drawing two or less responses were revised. Similarly, items having two possible correct responses were rewritten.

The revised final form of the CCT contained 45 multiple-choice paraphrase items with four alternatives in every item. The new CCT tested comprehension of nine conjunctions. It had a KR-20 reliability of .84, a mean of 27.84, and a variance of 51.88.

The researcher ensured content validity for the CCT by selecting for testing only conjunctions of high-frequency usage as determined by Thorndike's (1932) word frequency list. In addition, the researcher consulted four native English ESL teachers and three university professors to ascertain the grammaticality and acceptability of all sentences appearing in the CCT.

Primary Study

Setting and Sample

Final data collection occurred in February 1984 at the ELI. Sixty-four students in the Basic, Low-Intermediate, Intermediate, and High-Intermediate groups participated. Due to incomplete data, 14 subjects were dropped from the final data analysis.

The total sample consisted of 50 subjects: 15 Basic, 11 Low-Intermediate, 11 Intermediate, and 13 High-Intermediate students. The ELI groups students on the basis of the ELI grammar placement test which is given at the start of each semester. Subjects scoring in the lowest quarter of the grammar test were placed in the Basic group and those scoring in the top quarter were placed in the High-Intermediate group.

The 50 subjects in the sample represented 23 nationalities and 9 native languages. Table 3-1 presents their distribution by language and country.

Instrumentation

In addition to the revised CCT, this researcher obtained scores for all subjects on two reading proficiency measures. The subjects answered Form 3DTF3 of the TOEFL Reading Comprehension and Vocabulary subtest (Educational Testing Service, 1981) and the RFU Placement Test (Thurstone, 1963b).

TOEFL is a multiple-choice instrument that measures the English proficiency of nonnative English speakers. The test, published by the Educational Testing Service (ETS), has been recommended for use with students in grade 11 or above (Educational Testing Service, 1982). According to the ETS (1982), over 2,000 American and Canadian colleges and universities require TOEFL scores of nonnative English speakers for admission. The test is divided into three sections: Listening Comprehension, Structure and Written Expression, and Reading Comprehension and Vocabulary.

The first 30 items of the TOEFL Reading Comprehension and Vocabulary subtest measure vocabulary knowledge. The test requires the selection of words or phrases that are approximately the same as underlined words given in complete sentences.

The last 30 items of this subtest measure reading comprehension of nontechnical materials. According to the ETS (1982), no background knowledge of the subject matter is necessary in order to understand

Table 3-1--Native Languages and Countries of Origin

Language	n	Country	n
Arabic	11	Egypt	1
		Kuwait	1
		Lebanon	3
		Libya	1
		Palestine	1
		Saudi Arabia	1
		Tunisia	1
Bamike	1	Cameroon	1
Ewondo	1	Cameroon	1
Farsi	2	Iran	2
French	2	Cameroon	1
		France	1
Greek	1	Greece	1
Haoussa	1	Nigeria	1
Maninka	1	Guinea	1
Spanish	29	Colombia	8
		Costa Rica	2
		Cuba	1
		Dominican Republic	1
		Guatemala	1
		Honduras	2
		Puerto Rico	1
		Spain	2
		Venezuela	11
Thai	1	Thailand	1

Total sample = 50

the passages. On Form 3DTF3, the number of questions ranged from three to seven per passage. The last two questions on this form required the selection of the paraphrased sentence that was closest in meaning to the one given.

The RFU Placement Test was published by Science Research Associates (Thurstone, 1963b) and was designed for students having some skill in "word recognition, word attack, and reading as taught in the primary grades" (Thurstone, 1963a, p. 3). The 100-item Placement Test has items organized in an increasing order of difficulty and was first administered in 1958 to more than 1,200 students from third grade to sophomore year of college. The test has been used to place students within the Reading for Understanding--General (Thurstone, 1969) lessons which aim at the improvement of a reader's ability to derive meaning from print. The Reading for Understanding--General reading lessons were designed for use in reading clinics from third grade through college.

Although the RFU Placement Test was intended for use with native English speakers, the ELI reading program at the University of Florida has found the test useful for nonnative speakers. The test is part of the ELI reading program and all students take the test at the beginning of each semester. The Reading Coordinator at the ELI reported that the test serves to discriminate among students varying in reading proficiency.

Collection of the Data

In order to disrupt ELI classes minimally, test administration was carried out by the ELI reading teachers over a three-week period.

The four reading teachers and the reading coordinator met with this researcher in late January 1984. At this meeting, the teachers agreed to administer the three instruments to their students during their 50-minute class period. The teachers received copies of the Directions for Teachers for the CCT. Within the next two weeks, they received written directions for administration of the TOEFL Reading Comprehension and Vocabulary subtest. The teachers were already familiar with the administration of the RFU Placement Test. The researcher underscored at the meeting the importance of uniform procedures in test administration and the teachers readily agreed to follow the prescribed procedures.

On Wednesday and Thursday of the first week in February each teacher administered the CCT to his or her group at the ELI. The four proficiency-level groups were tested within a 24-hour period. Because tape recorders were not readily available for each teacher, the teachers read aloud all directions while their students followed along silently on their own copies of the test. After presenting the three sample items provided in the test booklet, the teachers solicited questions from the students regarding test procedures. Once the test had begun, the teachers answered no further questions.

During the second week of February, the ELI students took the RFU Placement Test. Again, the teachers presented a sample test item before beginning the test with their students. The subjects were instructed to answer as many questions as possible and to make reasonable guesses when in doubt.

On February 23, 1984--3 weeks after the administration of the CCT--the reading teachers administered the TOEFL Reading Comprehension

and Vocabulary subtest. In the General Instructions for TOEFL Reading and Vocabulary Subtest, the researcher requested of the teachers that they follow some basic guidelines suggested by the Educational Testing Service (1982). These guidelines required that the answer sheets be handed out and completed before handing out the test books. The students were told to try to answer all questions and to make reasonable guesses when uncertain. The teachers allowed the subjects 45 minutes to answer the TOEFL subtest.

Treatment of the Data

Each teacher hand scored the RFU Placement Test for his or her own group using the answer key provided in the SRA Reading for Understanding, Junior: Teacher's Handbook (Thurstone, 1963a, p. 29).

The reading coordinator at the ELI received all scores and gave the researcher a copy of these scores by group level. Only raw scores were computed and used in the analysis.

The researcher and the reading coordinator hand scored the TOEFL subtest using the vinyl hand-scoring keys provided by ETS. Separate raw scores for vocabulary and reading were obtained by dividing the subtest into its two component parts.

The researcher hand scored the CCT and obtained a raw score for each subject. The scores were organized by ELI proficiency-level groups.

Each subject received an identification number which was entered into a master list. Each subject's tests were identified through his or her identification number to ensure anonymity.

The vocabulary section of the TOEFL subtest served as a control measure for vocabulary. The researcher computed the Pearson product-moment correlation for the reading portion of the TOEFL subtest, the RFU Placement Test, and the CCT using the Statistical Analysis System (SAS) computer program.

In order to determine whether a significant difference in difficulty existed among the nine conjunctions, the researcher performed a repeated measures analysis of variance using the SAS program and the Biomedical Computer Program (BMDP) 4V series. The raw scores for each set of five items measuring each conjunction was thus analyzed.

Pairwise comparisons of mean differences were performed using the Tukey procedure. This analysis yielded information on how the conjunctions differed in difficulty from each other.

Chapter IV presents the analysis of the data in terms of the questions and hypotheses raised by the researcher. It provides the statistical findings followed by a brief discussion of the results.

CHAPTER IV ANALYSIS OF THE DATA

The main purpose of this study was to investigate the relationship between adult English-as-a-second-language reading comprehension and the ability to understand intrasentential relations signaled by conjunctions. The second purpose was to ascertain whether some conjunctions are more difficult for the ESL adult learner. Fifty adult nonnative English speakers varying in native language and nationality took part in the investigation. Raw scores were obtained for these subjects on the researcher-developed CCT, the RFU Placement Test, and the TOEFL Reading Comprehension and Vocabulary subtest.

This chapter presents the data analysis. The statistical analysis of the data is organized in terms of the questions and hypotheses addressed.

Data Analysis Related to Research Questions and Hypotheses

Question I and Hypothesis I

The research evidence reviewed in Chapter II indicated that the ability to understand the relationships within a sentence as signaled by conjunctions is related to reading comprehension for native and nonnative English-speaking children. However, since similar research has not been done with adult ESL readers, the present research was conducted. The present research raised several questions concerning this problem.

Question I. Is there a relationship between reading comprehension and the ability to understand intrasentential relationships signaled by conjunctions in adults learning English as a second language?

In an attempt to answer this question, the following hypothesis was tested.

Hypothesis I. There is no significant correlation between ESL subjects' reading comprehension as measured by the reading portion of the TOEFL Reading Comprehension and Vocabulary subtest and the RFU Placement Test, and their ability to identify the relationships signaled by selected conjunctions as measured by the CCT.

Initially, the data were first examined for skewness and kurtosis. This analysis showed no significant deviations from normal distribution for all measures used.

Pearson product-moment correlations were then computed from each of the three instruments. The correlations were calculated using Statistical Analysis System (SAS) computer program.

There was a significant and high positive correlation ($r = .78$) at the .05 level of significance between the reading portion of the TOEFL Reading Comprehension and Vocabulary subtest and the RFU Placement Test. The two instruments were strongly related indicating a high degree of commonality in what these tests measured.

The Pearson product-moment correlation for the researcher-developed CCT and the RFU Placement Test was also significant and high ($r = .86$) at the .05 level of significance. Thus, there was a strong positive relationship between reading comprehension and understanding of relationships signaled by conjunctions as measured by these two instruments.

For the CCT and the reading section of the TOEFL Reading Comprehension and Vocabulary subtest, the Pearson product-moment correlation was .68, which was significant at the .05 level. Again the data analysis indicated a strong positive relationship between adult nonnative English speakers' reading comprehension and their ability to perceive conjunctive relationships within sentences.

The CCT, the RFU Placement Test, and the reading section of the TOEFL Reading Comprehension and Vocabulary subtest were also significantly correlated at the .05 level with the vocabulary portion of the TOEFL subtest. The Pearson product-moment correlation for vocabulary and the CCT was .70; for vocabulary and the RFU Placement Test, it was .77. The correlation between the reading and vocabulary portions of the TOEFL subtest was .78. These high positive correlations with vocabulary implied that vocabulary might be the common factor underlying all three tests. Table 4-1 summarizes the Pearson product-moment correlations.

Table 4-1--Pearson Product-moment Correlations for the CCT, RFU Placement Test, and TOEFL Reading Comprehension and Vocabulary

	<u>RFU</u>	<u>TR</u>	<u>CCT</u>	<u>TV</u>
RFU	--	.78*	.86*	.77*
TR		--	.68*	.78*
CCT			--	.70*

TR = reading portion of TOEFL subtest

TV = vocabulary portion of TOEFL subtest

* $p < .05$

In order to determine whether a relationship exists between reading comprehension and understanding of intrasentential conjunctive relationships not due to vocabulary, partial correlation coefficients were calculated holding vocabulary constant. This procedure was completed through the Statistical Package for the Social Sciences (SPSS) computer program. The results of these partial correlations are presented in Table 4-2.

Table 4-2--Partial Correlation for the CCT, RFU Placement Test, and Reading Portion of the TOEFL Holding Vocabulary Constant

	<u>RFU</u>	<u>TR</u>	<u>CCT</u>
RFU	--	.45*	.71*
TR		--	.30*
CCT			--

TR = reading portion of TOEFL

* $p < .05$

After controlling for vocabulary, a significant positive correlation at the .05 level was found between the CCT and the two measures of reading comprehension. There was also a significant and positive correlation between the two reading measures. Interestingly, the CCT correlated much higher with the RFU Placement Test ($r = .71$) than it did with the reading portion of the TOEFL subtest ($r = .30$). These positive correlations indicated a high degree of commonality between the CCT and the RFU Placement Test which could not be explained by vocabulary alone. Furthermore, the relationship between the CCT and the RFU Placement Test was stronger than that between the

two reading measures ($r = .45$). Thus, there was a stronger relationship between the CCT and the RFU Placement Test than between any other two measures.

The statistical analysis of the data gave an affirmative answer to Question I. There was a strong relationship between reading comprehension and comprehension of conjunctions, even after controlling for vocabulary. Moreover, there appeared to be a high degree of commonality between the CCT and the RFU Placement Test. Therefore, the null hypothesis was rejected. There was a significant and positive correlation between reading comprehension and the ability to identify relationships signaled by conjunctions as measured by the reading portion of the TOEFL Reading Comprehension and Vocabulary subtest, the RFU Placement Test, and the CCT.

Question II and Hypothesis II

Having found a relationship between adult ESL reading comprehension and their understanding of conjunctive relationships within sentences, a question arose regarding the relative difficulty of coordinating and subordinating conjunctions.

The fact that coordinate and subordinate conjunctions were not significantly different for the sample of nonnative adults did not signify that all nine conjunctions were of equal difficulty. Thus, the researcher confronted a second question.

Question II. Are all conjunctions equally difficult for the adult ESL reader?

To answer this question the researcher proceeded to test a second null hypothesis.

Hypothesis II. There is no significant difference in the level of difficulty of various conjunctions for adult ESL readers as measured by the CCT.

Table 4-3 summarizes the results of the repeated measure analysis of variance on the raw scores of the CCT for the nine conjunctions tested. This statistical analysis revealed a significant difference among the conjunctions. The computed F value of 8.65 with Greenhouse-Geisser adjusted degrees of freedom was significant at the .05 level. As a result, the null hypothesis was rejected. There was a significant difference in the level of difficulty of various conjunctions for adult ESL readers as measured by the CCT. Appendix F presents item difficulty for the CCT.

Table 4-3--Differences Among CCT Conjunctions Using Repeated Measure Analysis of Variance

Source	df	<u>UNADJUSTED</u>			<u>GREENHOUSE-GEISSER</u>	
		MS	F	<u>P</u>	df	<u>P</u>
Measured	8	9.21	8.65*	.00	6.37	.00
Error	392	1.07			312.18	

*p < .05

Question III and Hypothesis III

After discovering that significant differences existed among the nine conjunctions of the CCT, a final question remained unanswered.

Question III. Which specific conjunctions are more difficult for the adult ESL learner?

In order to answer this question, the following null hypothesis was then tested.

Hypothesis III. There is no significant difference for adult ESL readers in the mean differences among all possible pairs of conjunctions measured by the CCT.

All pairwise comparisons of mean differences are presented in Table 4-4. Ninety-five percent confidence intervals using Tukey's procedure at 9 and 392 degrees of freedom yielded significant differences for several pairs of conjunctions. The conjunction after proved significantly different from while, so, although, therefore, however, and when. The conjunction yet proved significantly different from while, so, and although. Finally, a significant difference existed between before and while.

Mean scores for the nine conjunctions, as shown in Table 4-4, suggest that the conjunction after proved to be more difficult for the adult ESL subjects than all other conjunctions except before and yet. The conjunction yet was more difficult for the sample of subjects than while, so, and although. Similarly, the conjunction before was more difficult than while.

Based on the mean scores for each conjunction, while, so, and although were the three easiest conjunctions, in that order. At the same time, in order of increasing difficulty, before, yet, and after were the three most difficult for the sample of nonnative English readers. There appeared to be no differences in difficulty between subordinate and coordinate conjunctions based on these means and item difficulty (see Appendix F).

Table 4-4--Mean Differences Between CCT Conjunctions Using Tukey Procedure

MEAN	(S) C ₁	(C) C ₂	(S) C ₃	(C) C ₄	(C) C ₅	(S) C ₆	(S) C ₇	(C) C ₈	(S) C ₉
C ₁ 3.66	--	.14	.24	.48	.54	.54	.72*	1.08*	1.32*
C ₂ 3.52		--	.10	.34	.40	.40	.58	.94*	1.18*
C ₃ 3.42			--	.24	.30	.30	.48	.84*	1.08*
C ₄ 3.18				--	.06	.06	.24	.60	.84*
C ₅ 3.12					--	.00	.18	.54	.78*
C ₆ 3.12						--	.18	.54	.78*
C ₇ 2.94							--	.36	.60
C ₈ 2.58								--	.24
C ₉ 2.34									--

C₁ = while C₂ = so C₃ = althoughC₄ = therefore C₅ = however C₆ = whenC₇ = before C₈ = yet C₉ = after

S = Subordinate conjunction

C = Coordinate conjunction

*95% Confidence Interval with 9 and 392 df

The results of the data analysis provided sufficient evidence to reject Hypothesis III. There was a significant difference among all possible pairs of conjunctions measured by the CCT.

Discussion

The major purpose of this investigation was to examine whether a relationship exists between reading comprehension and comprehension of conjunctions for adults learning to read English as a second language. A related problem also investigated was whether conjunctions vary in their level of difficulty for adult ESL learners. Finally, the study looked at specific conjunctions in terms of their relative difficulty for nonnative English readers.

Two measures of reading, the RFU Placement Test and the reading portion of the TOEFL Reading Comprehension and Vocabulary subtest, were used in data gathering. In addition, the researcher-developed CCT was used to measure comprehension of nine common conjunctions.

The first problem investigated was the relationship between reading comprehension and the understanding on intrasentential relationships signaled by conjunctions in adult ESL subjects. The results of this investigation revealed that, after controlling for vocabulary, a significant relationship existed between reading comprehension and understanding of intrasentential conjunctive relationships. Furthermore, the data indicated a significant relationship between the CCT and the two reading measures used in the study. Above all, there was a strong positive relationship between the CCT and the RFU Placement Test that was not attributable to vocabulary.

This strong positive correlation between the CCT and the RFU Placement Test, as compared to the CCT and the reading portion of the TOEFL Reading Comprehension and Vocabulary subtest, may be explained by the types of attributes tested by these measures.

The TOEFL subtest required subjects to read silently a series of short selections in order to respond to multiple-choice questions based on these selections. Among the skills tested by the TOEFL subtest were identifying the main idea, drawing conclusions, identifying details that support conclusions, drawing inferences, and understanding details.

In contrast, the RFU Placement Test required that the subjects read silently one or more sentences in order to select the word or phrase that best completed the idea presented. Items on the RFU Placement Test were organized in an ascending order of difficulty. The RFU scores apparently depend on the respondent's ability to perceive the relationship among ideas within a sentence or short paragraph. The reader must be able to establish proper "closure," in the Gestalt sense of perceiving how the parts form the greater whole. In the same manner, the CCT was designed to measure the ability to understand intrasentential relationships signaled by conjunctions. It required the reader to select an appropriate paraphrase as an indicator of having understood how the parts of the sentence are related to form a complete idea.

Both the CCT and the RFU Placement Test seem to test a common skill: the ability to understand how words are related to convey meaning. The fact that all three instruments were significantly intercorrelated suggests that the TOEFL subtest also measured this

skill to some degree. Certain skills tested on the TOEFL subtest, such as identifying the main idea, indicate that this is probably true.

The second question examined whether all nine conjunctions were of equal difficulty. The statistical analysis of the data showed a significant difference did exist among the conjunctions.

The third question asked which pairs of conjunctions were significantly different. The results revealed that the conjunction after was significantly more difficult than all other conjunctions except before and yet. The conjunction yet was harder for the sample of adults than while, so, and although. The conjunction before also proved harder than the conjunction while. The three most difficult conjunctions were after, yet, and before; the three least difficult were while, so, and although.

Since the data analysis revealed no apparent difference between coordinate and subordinate conjunctions, yet showed a significant difference in difficulty among the nine conjunctions tested, it is possible that for adult nonnative English readers the type of relations established by the conjunctions, such as adversative, temporal, or causal, might be a greater contributor to comprehension difficulty than subordination or coordination. However, the present study was not designed to delve into this possibility. There still remain many unanswered questions which future research should attempt to answer.

The following chapter summarizes the methodology and statistical findings of this study. It also discusses the conclusions and implications based on these research findings. Finally, the researcher presents her recommendations for further research.

CHAPTER V SUMMARY AND CONCLUSIONS

Research attested to the frequency with which sentence connectors appear in print (Howard, 1980/1983; Pakeresht, 1977/1978; Rodgers, 1974). Research also discloses that reading comprehension for native and nonnative English-speaking children is associated with comprehension of conjunctions and other cohesive markers (Bridge & Winograd, 1982; Grant, 1979/1980; Loeffler, 1982). Furthermore, Price (1981/1982) and Soltis and Pflaum (1979) found that direct instruction in conjunctions resulted in significant improvement both in understanding and using conjunctions and that there was an apparent link between said instruction and reading comprehension for nonnative English-speaking children. Notwithstanding, comprehension of conjunctions and its relation to reading remains a fertile field for empirical investigation where adult nonnative English readers are concerned.

The present research study sought answers to several questions regarding the relationship between the understanding of conjunctive relationships within sentences and reading comprehension for adult English-as-a-second-language readers. This chapter provides a summary of the methodology and statistical findings. Conclusions and implications are discussed; last, this researcher submits recommendations for further research.

Summary

To measure understanding of intrasentential relations signaled by conjunctions, the researcher developed the Comprehension of Conjunctions Test (CCT), a 70-item multiple-choice paraphrase test. The CCT was pilot tested by the researcher on 33 adult, nonnative English readers. These subjects were drawn from the English Language Institute (ELI) at the University of Florida; they varied in second-language proficiency and were enrolled in the graduate-level track. A second group of 18 native English students enrolled in graduate reading education courses at the University of Florida served as a comparison group.

Based on the results of the pilot test, the researcher revised the CCT, dropping all items testing comprehension of but which proved too easy for most subjects. The final version of the CCT contained 45 items testing comprehension of the relationships signaled by while, so, although, therefore, however, when, before, yet, and after. The final CCT had a split-half reliability of .84.

In the primary study, reading comprehension was measured by the Reading for Understanding (RFU) Placement Test (Thurstone, 1963b) and by the reading portion of the Test of English as a Foreign Language (TOEFL) Reading Comprehension and Vocabulary subtest (Educational Testing Service, 1981). The RFU Placement Test is normally administered as part of the ELI reading program; it has been found to be a good discriminator of reading ability.

Sixty-four ELI students participated in the primary study. Fourteen subjects were dropped due to incomplete data. The remaining 50 subjects represented 9 native languages and 23 countries. Their

levels of English proficiency varied; they represented all four levels in the ELI program.

Prior to testing, the researcher met with the ELI reading coordinator and reading teachers to explain the uniform testing procedures that were required. Over a 3-week period, the reading teachers then administered the three tests to their respective students.

All tests were hand-scored. The RFU Placement Test was scored by the teachers using the answer key provided in the RFU handbook (Thurstone, 1963a, p. 29). The researcher and the ELI reading coordinator scored the TOEFL subtest using the scoring sheets provided by the Educational Testing Service. The researcher scored the CCT.

The following hypotheses were tested. Following each is a statement of the findings for each hypothesis.

Is there a relationship between reading comprehension and the ability to understand intrasentential relationships signaled by conjunctions in adults learning English as a second language? To answer this question, Hypothesis I was tested: There is no significant correlation between ESL subjects' reading comprehension as measured by the reading portion of the TOEFL Reading Comprehension and Vocabulary subtest and the RFU Placement Test, and their ability to identify the relationships signaled by selected conjunctions as measured by the CCT.

Pearson product-moment correlations showed a significant positive correlation at the .05 level for the CCT and the two reading measures

as well as for the RFU and the reading portion of the TOEFL subtest. After controlling for vocabulary, partial correlation coefficients again demonstrated significant positive correlations between tests at the .05 level. In addition, the CCT had a higher correlation with the RFU ($r = .71$) than with the reading portion of the TOEFL subtest ($r = .30$). Consequently, Hypothesis I was not supported by the evidence and Question I received an affirmative response. There was a significant correlation between comprehension of intrasentential conjunctive relations and reading comprehension for adult ESL learners.

Are all conjunctions equally difficult for the adult ESL reader? Seeking an answer to this question, the researcher tested Hypothesis II: There is no significant difference in the level of difficulty of various conjunctions for adult ESL readers as measured by the CCT.

A repeated measure analysis of variance with Greenhouse-Geisser adjusted degrees of freedom was applied to raw scores on the CCT. The results indicated that a significant difference existed among the nine conjunctions at the .05 level. Hence, Hypothesis II was rejected and Question II received a negative answer. The conjunctions on the CCT were not of equal difficulty.

Because the conjunctions were found to be of unequal difficulty, a third question was posed: Which specific conjunctions are more difficult for the adult ESL learner? This question was answered by testing Hypothesis III: There is no significant difference for adult ESL readers in the mean differences among all possible pairs of conjunctions measured by the CCT.

The Tukey procedure with 9 and 392 degrees of freedom revealed that the conjunction after was significantly different from all other conjunctions except before and yet ($p < .05$). The conjunction yet was significantly different at the .05 level from while, so, and although. In addition, at the .05 level there was a significant difference between before and while. Hypothesis III was therefore rejected.

The researcher next examined the mean score for each conjunction. The mean scores revealed that the conjunction after was the most difficult for the adult ESL subjects. The next two conjunctions in order of difficulty were yet and before. The least difficult conjunction was while followed by so and although.

Conclusions and Implications

Research indicated that native and nonnative English-speaking children find some conjunctions more difficult than others. Similarly, the current study revealed that the adult ESL readers in the sample found the conjunctions on the CCT to be of unequal difficulty. This similarity between child and adult learners does not signify complete equivalence in their understanding of conjunctive relations. Instead, the evidence suggests that adult ESL readers and children have analogous but not identical problems with conjunctions.

A comparison of the present research findings with those of studies on children wherein reading was involved in the testing procedures discloses both similarities and differences. Both the current investigation and earlier studies on native and nonnative English-speaking children showed that subjects had difficulty

understanding the conjunction yet (Loeffler, 1982; Price, 1981/1982; Robertson, 1968). It is likely that this conjunction is inherently difficult. This difficulty possibly stems from the contradiction of probable or expected behavior that is introduced by yet in such sentences as follows:

1. Bill sings well, yet he won't join the choir.
2. Martha left early, yet she was late for work.
3. Andrew didn't study, yet he passed the test.
4. We could go, yet we prefer to stay home.

The sample of adult ESL readers in the current study as well as the fifth-grade native English speakers in Price's 1981 study had difficulty understanding the conjunction before. None of the other researchers reviewed reported that this conjunction was either difficult or easy for children. However, Burt and Kiparsky (1972) included this conjunction among those that pose a problem for ESL learners.

Although this researcher found that the adult samples had difficulty with sentences containing the conjunction after, the children in Price's study reportedly had no problems in understanding this conjunction. Similarly, Barrie-Blackley (1973) reported that 6-year-olds exhibited greater auditory comprehension of the conjunction after than they did of before. Other researchers reviewed did not indicate that this conjunction proved either easy or difficult for their sample populations. Burt and Kiparsky did include this conjunction in their book among those that are difficult for ESL learners.

As Table 5-1 demonstrates, the research on children generally agrees with the current findings on adult ESL readers in terms of those conjunctions which proved difficult to understand. The conjunctions yet and before were difficult both for children and adults. On the other hand, the conjunction after was difficult for the adults but not for children.

Though the conjunctions however and when were of medial difficulty for the adults in the current investigation, Table 5-1 shows that these conjunctions were difficult for native English-speaking children. Loeffler's (1982) study on ESL children found that these children had difficulty understanding therefore, whereas the adult ESL readers in the current research had medial difficulty with this conjunction.

The conjunctions while, so, and although showed less consistency throughout the research findings. These three conjunctions were the easiest for the adults sampled in the current investigation.

Price's (1981/1982) findings agree with the results of the CCT for the conjunction while. Her sample of native English-speaking children had no difficulty with this conjunction. Nevertheless, this conjunction was difficult for Stoodt's (1970/1971) sample of native English-speaking children and for Loeffler's sample of native American children.

Though Price observed that native English-speaking children had no problem understanding the conjunction so, Loeffler and Stoodt reported that their subjects had difficulty with this conjunction. Thus, there is no consensus in the research on the conjunction so.

Contrary to the present findings, Robertson (1968) found that although was difficult for native English-speaking children. None of

Table 5-1--Difficulty Level of Conjunctions: Child Research and Adult CCT Results

<u>Conjunction</u>	<u>Adults</u>	<u>Children</u>		
	<u>CCT Level</u>	<u>Study</u>	<u>Level</u>	<u>Grade</u>
after	Difficult	Price	Easy	5
yet	Difficult	Loeffler*	Difficult	4, 5, 6
		Price	Difficult	5
		Robertson	Difficult	4, 5, 6
before	Difficult	Price	Difficult	5
therefore	Medial	Loeffler*	Difficult	4, 5, 6
however	Medial	Robertson	Difficult	4, 5, 6
		Price	Difficult	5
when	Medial	Loeffler*	Medial	4, 5, 6
		Price	Difficult	5
		Stoodt	Difficult	4
while	Easy	Loeffler*	Difficult	4, 5, 6
		Price	Easy	5
		Stoodt	Difficult	4
so	Easy	Loeffler*	Difficult	4, 5, 6
		Price	Easy	5
		Stoodt	Difficult	4
although	Easy	Robertson	Difficult	4, 5, 6
but**	Easy	Loeffler*	Medial	4, 5, 6
		Price	Difficult	5
		Stoodt	Difficult	4

*Loeffler's study investigated ESL learners.

**But appeared on the CCT prototype but not on the final CCT.

the other researchers reported although to be either difficult or easy.

Although the conjunction but was deleted from the final form of the CCT, it was contained in the CCT prototype. The test pilot showed that this conjunction was very easy for the sample of adults. Loeffler's (1982) study indicated that but was of medial difficulty for nonnative fourth-, fifth-, and sixth-grade native Americans. Both Stoodt (1970/1971) and Price (1981/1982) reported that this conjunction was difficult for native English children. Katz and Brent (1968) observed that first-grade students used but less frequently than did sixth-grade children.

Table 5-1 reflects that though there is a lack of consensus in the research on the conjunctions while, so, and although, most studies on children tend to contradict the current findings on adult ESL readers. However, this comparison of prior research on children and results of the current study is limited by the fact that the studies did not investigate the same conjunctions nor did they follow the same procedures. Nevertheless, there is sufficient overlapping in the conjunctions studied so that some inferences can be drawn. It is apparent that the conjunctions after, yet, and before are difficult for adult ESL readers, child ESL readers, and native English children. There is also indication that native and nonnative English children have greater difficulty with while, so, although, and but than do adult ESL readers.

Despite the fact that some researchers (Barrie-Blackley, 1973; Bebout, Segalowitz, & White, 1980; Clark, 1971; Johnson & Chapman, 1980; Katz & Brent, 1968; Loeffler, 1982; Robertson, 1968) have noted

that comprehension and usage of conjunctions seem to increase with age, the present findings are not completely explained by this developmental interpretation. Most studies, including the current one, found that yet and before were difficult to understand. This observation suggests that these conjunctions pose a linguistic problem rather than a developmental or maturational problem. If cognitive maturity were the sole requirement for understanding yet and before, then the adult ESL subjects in the current investigation should have had no problems with these two conjunctions.

Cognitive maturity may play a crucial role in developing comprehension of the other conjunctions tested by the CCT. Most children in the studies reviewed had difficulty understanding the conjunctions therefore, however, when, while, so, although, and but. The ESL adults in the current study, however, did not have much difficulty with these conjunctions. Possibly, cognitive maturity and greater exposure to formal writing are necessary for the development of an understanding of the relationships signaled by these conjunctions. /

It is important to note that the current investigation and the research presented in Table 5-1 looked at comprehension of conjunctions from a receptive rather than productive perspective. There is evidence, however, that receptive understanding precedes production of structures (Clark, 1971). Consequently, these findings should not be assumed to reflect the ability to use conjunctions in writing.

The lack of total correspondence in the comprehension of conjunctions between adult ESL readers and native and nonnative

English children may stem from innate differences between child and adult learners. These differences reflect maturational and cognitive differences as well as differences in learning strategies and background experiences.

Jean Piaget's theory (Brainerd, 1978; Whitbourne & Weinstock, 1979, pp. 44-50), which suggests that intellectual development proceeds from the concrete to the abstract in a series of fixed stages, explains why adults can utilize more complex cognitive processes than the developing child. Lovell (1980) observed that adults make use of the existing fundamental learning acquired in childhood. Consequently, the adult has a vast store of knowledge and experiences from which to draw (Knowles, 1968, 1973). The adult can also transfer first-language learning strategies to second-language learning (Lee, 1972/1973). Finally, evidence from second-language research reveals age-related differences in language learning with older learners outperforming younger learners in comprehension and production of complex structures (Asher, 1967; Ervin-Tripp, 1974; Fathman, 1982; Snow & Hoefnagel-Höhle, 1982).

In the light of these differences between children and adults, the results of the comparison of research on children and the adult CCT results are far from surprising. The comparison showed definite differences and some similarities between children and adults in comprehension of conjunctions. Evidently, extrapolations from child research to adult learners are tenuous at best. Direct research on adult ESL learners is essential for understanding of the processes, problems, and strategies that are relevant to adult second-language learning.

The apparent absence of a difference in difficulty between coordinating and subordinating conjunctions based on mean scores and item difficulty suggests that the type of relationship (e.g., incorporation, qualification, contrast, comparison) might be of greater relevance than coordination and subordination. Unfortunately, the small number of conjunctions sampled in the current investigation does not enable any answer to this question.

The findings show a significant relationship between comprehension of conjunctions and reading comprehension. The findings do not explain the exact nature of this relationship. Nevertheless, it is clear that ESL educators and researchers might well look more closely at conjunctive relationships as a relevant factor in ESL reading comprehension. ESL textbook writers might also consider conjunctions as a variable that may affect readability of written materials. From the review of textbooks conducted by this researcher at the onset of this investigation, it is apparent that there is an almost total disregard of conjunctive relations in the ESL reading classroom. In addition, the review of the related literature revealed the paucity of investigation into the understanding of conjunctive relationships and reading English as a second language. Even less research has been conducted using adult ESL learners. It would appear that comprehension of conjunctions and reading comprehension for adult ESL learners are areas in need of greater empirical investigation and pedagogical attention.

Recommendations for Further Research

Because of the limitations in scope and sampling, this investigation leaves many unanswered questions. Some of the more

salient questions are presented below. Future investigation into these areas would both expand and strengthen the current findings as well as increase the present body of knowledge on ESL adult learners.

The final CCT included only nine conjunctions with five items per conjunction. These conjunctions represent only a sample of the many common conjunctions used in written text. It would be fruitful to explore other conjunctions in terms of their relative difficulty for adult ESL learners. Furthermore, research into the similarities and differences between first- and second-language English-speaking children and English-as-a-second-language adults could disclose important discrepancies which may need attention in the ESL classroom. ESL educators would benefit from an understanding of adult problems in understanding conjunctive relations within written text.

The study did not address itself to the question of whether specific categories of conjunctions (e.g., incorporation, qualification, and contrast) are more difficult than others for the adult ESL reader. Research into this area may indicate that certain categories of conjunctive relations pose a greater problem for comprehension than do individual conjunctions. It is also likely, though unexplored by current research, that adults differ from children in the categories which are problematic for them. Furthermore, future research should examine whether instruction in conjunctive categories might improve adult ESL comprehension of conjunctive relationships. Such categorical instruction would provide the learner with a framework which might facilitate learning.

The present investigation did not attempt to determine the exact nature of the relationship found to exist between reading

comprehension and comprehension of conjunctive relationships within sentences. This question remains to be explored and clarified by future research. It remains unknown whether comprehension of conjunctive relations is merely a subset of a more general skill in understanding cohesive markers and relating ideas. It would be valuable to examine other forms of text cohesion and their relationship to adult ESL reading comprehension. Intersentential conjunctive relations should be studied for their probable relationship to adult ESL reading comprehension. Both explicit and implicit cohesive markers need to be investigated in terms of how they affect the adult ESL reader's understanding of written text.

Because the sample of adult ESL readers in this investigation consisted of university-level students, it is unknown whether adults at lower levels of education might have the same or different problems in understanding conjunctions as the sample of adults studied herein. Does academic background play a role in comprehension of conjunctions for adult ESL learners? Similarly, all adults in the researcher's sample were literate in their native language. Would illiteracy in the native language affect comprehension of conjunctive relations in the target language? In a nation with an ever-increasing number of immigrants, illegal aliens, and refugees arriving from third-world nations where educational opportunities are limited, the answers to such questions are of immediate practical value.

Given that a strong relationship was found between comprehension of intrasentential conjunctions and reading comprehension for adult ESL readers in the current study, it is of interest to learn how comprehension of conjunctive relations might be improved for the ESL

learner. Still unknown is whether direct instruction on conjunctions or conjunctive categories can improve the adult ESL learner's understanding of conjunctive relationships. Furthermore, it is unknown whether improvement in comprehension of conjunctive relations will directly result in improved reading comprehension for the adult ESL reader. Nor is it known which ESL learners might benefit most from direct instruction on conjunctions.

Analogous to the question of whether direct instruction on conjunctions would benefit ESL readers is the question of which teaching method is most effective for adults learning English as a second language. Should conjunctions be presented in an order of increasing difficulty? Should conjunctions be initially presented within the framework of a complete written text or would it be more effective to introduce them out of context followed by an explanation of their function and meaning in sentences? Perhaps it would be more effective to introduce conjunctive categories rather than individual conjunctions. A receptive method involving an extended period of auditory comprehension prior to the introduction of conjunctions in written text might prove effective for adults. On the other hand, simultaneous oral and written presentation might be even more effective. The use of drawings, charts, and other visual props might help adults improve their understanding of conjunctions. A computer program offering immediate feedback, visual displays, color graphics, music, and randomized practice could be another effective teaching method. The question of which method achieves the goal of improved understanding of conjunctive relationships for the adult ESL learner

in the most efficient and effective way is a matter worth investigating.

Beyond reading comprehension and the understanding of conjunctions there remains the question of understanding conjunctive relations and productive writing. Would direct instruction on conjunctions improve productive writing for adult ESL subjects? Would such instruction result in the production of more cohesive and logical texts? Will understanding of conjunctions in reading transfer directly to productive writing. Should conscious and extended controlled practice on conjunctions precede productive writing? These questions can be answered only by additional research on adult ESL learners.

Equally important from a pedagogical perspective are the sociocultural and linguistic factors which may interact in the acquisition of understanding of conjunctions. Adults literate in their native language may benefit from a different teaching method than adults who are illiterate in the first language. Second-language proficiency may largely determine which conjunctions are understood. Although native language was not considered a factor in the current investigation, a larger sample of adults varying in native language background might reveal differences in comprehension of conjunctions. Languages express conjunctive relations in numerous ways which differ from English.

APPENDIX A
DIRECTIONS FOR TEACHERS: CCT

1. Read the directions (first 3 pages of the test) with the students.
The students should follow along silently on their own copies of the test.
2. Be sure that all students correctly complete the heading (Name, etc.) on the first page of the test. They should also write their name and group on their answer sheets.
3. Explain that a computer answer sheet will be used in recording their answers. Students are to blacken the circle (fill in the bubble) of the correct response on their answer sheets. Students
WRITE NO ANSWERS IN THE TEST BOOKLET.
4. Read the Consent Form (page 4 of the test) with the students.
Make certain that all students sign this form before taking the test.

Thanks again for your help in this study. It is really appreciated.

APPENDIX B
CONSENT FORM

Please read and sign the following consent form before
continuing with the test.

I understand the purpose of this study and give my permission
for the use of my test results in this investigation.

Signature

Date

APPENDIX C
COMPREHENSION OF CONJUNCTIONS TEST

Directions

Please write your name and group number on the first page of this test. Write your native language on the line below your name. Write your nationality under your native language.

This test will examine your understanding of written English. The results will be used in a scientific study on adults learning English as a second language. These results will NOT be used for evaluating your work in this class. All test results will remain anonymous.

This test consists of a series of sentences in English. Each test sentence has four possible answers--A, B, C, and D. You should read each test sentence carefully and select the alternative sentence (A, B, C, or D) which means the same thing.

Look at the first example.

Example One

The Robinsons will come or James will telephone us.

- _____ A. The Robinsons will come and James will telephone us.
- _____ B. The Robinsons will come. Otherwise, James will telephone us.
- _____ C. The Robinsons will come. Similarly, James will telephone us.
- _____ D. The Robinsons will come because James will telephone us.

Alternative B is the best answer. It expresses the same idea as "The Robinsons will come or James will telephone us." Write an X on the line before the letter B.

Now look at the second example.

Example Two

Marie went to the store because she needed milk.

- _____ A. Marie went to the store, since she needed milk.
- _____ B. Marie went to the store; then, she needed milk.
- _____ C. Marie went to the store; also, she needed milk.
- _____ D. Marie went to the store, though she needed milk.

In Example Two, sentence A expresses the same idea as "Marie went to the store because she needed milk." Write an X on the line next to the letter A.

Let's look at the final example. Can you find the sentence which expresses the same idea as "Paul will come if he has time"?

Example Three

Paul will come if he has time.

- ☐ A. Paul will come because he has time.
- ☐ B. Paul will come now that he has time.
- ☐ C. Paul will come on condition that he has time.
- ☐ D. Paul will come even when he has no time.

Sentence C expresses the same idea as "Paul will come if he has time." Write an X on the line before the letter C.

You will answer each question on this test by writing an X next to the letter of your answer.

If you have any questions, please raise your hand and ask the teacher now. No questions can be answered after the test begins.

DO NOT OPEN TO QUESTION ONE UNTIL YOU ARE INSTRUCTED TO DO SO BY THE TEACHER.

1. Denise studied although she was tired.

- _____ A. Denise studied, but soon she was tired.
- _____ B. Denise studied even though she was tired.
- _____ C. Denise studied unless she was tired.
- _____ D. Denise studied until she was tired.

2. Kathy was sick this morning, yet she went to work.

- _____ A. Kathy was sick this morning, until she went to work.
- _____ B. Kathy was sick this morning; nevertheless, she went to work.
- _____ C. Kathy was sick this morning, since she went to work.
- _____ D. Kathy was sick this morning; meanwhile, she went to work.

3. The weather was very bad; however, schools remained open.

- _____ A. The weather was very bad; due to error, schools remained open.
- _____ B. The weather was very bad; just the same, schools remained open.
- _____ C. The weather was very bad; for a time, schools remained open.
- _____ D. The weather was very bad; for that reason, schools remained open.

4. The airplane tickets are expensive; however, we will go to Japan.

_____ A. The airplane tickets are expensive; even so, we will go to Japan.

_____ B. The airplane tickets are expensive; if possible, we will go to Japan.

_____ C. The airplane tickets are expensive; consequently, we will go to Japan.

_____ D. The airplane tickets are expensive; besides, we will go to Japan.

5. Debbie cried when she heard the music.

_____ A. Debbie cried, but she also heard the music.

_____ B. Debbie cried because she heard the music.

_____ C. Debbie cried as soon as she heard the music.

_____ D. Debbie cried now that she has heard the music.

6. We ate dinner before we watched television.

_____ A. We ate dinner, and later we watched television.

_____ B. We ate dinner; previously, we watched television.

_____ C. We ate dinner; immediately, we watched television.

_____ D. We ate dinner, though first we watched television.

7. The women danced while the men played cards.

- ☐ A. The women danced, but then, the men played cards.
- ☐ B. The women danced; for that reason, the men played cards.
- ☐ C. The women danced; at the same time, the men played cards.
- ☐ D. The women danced; following that, the men played cards.

8. Ted did not telephone, so Elizabeth was disappointed.

- ☐ A. Ted did not telephone; perhaps, Elizabeth was disappointed.
- ☐ B. Ted did not telephone; probably, Elizabeth was disappointed.
- ☐ C. Ted did not telephone; still Elizabeth was disappointed.
- ☐ D. Ted did not telephone; naturally, Elizabeth was disappointed.

9. Sam was a good athlete before he had an accident.

- ☐ A. Sam was a good athlete; following that, he had an accident.
- ☐ B. Sam was a good athlete; previously, he had an accident.
- ☐ C. Sam was a good athlete; soon, he had an accident.
- ☐ D. Sam was a good athlete; in addition, he had an accident.

10. Donna ordered a pizza after she burned the dinner.

- ☐ A. Donna ordered a pizza; previously, she burned the dinner.
- ☐ B. Donna ordered a pizza; besides, she burned the dinner.
- ☐ C. Donna ordered a pizza; then, she burned the dinner.
- ☐ D. Donna ordered a pizza; consequently, she burned the dinner.

11. The banks will be closed on Friday, yet the stores will be open.

- ☐ A. The banks will be closed on Friday; besides, the stores will be open.
- ☐ B. The banks will be closed on Friday; later, the stores will be open.
- ☐ C. The banks will be closed on Friday; in contrast, the stores will be open.
- ☐ D. The banks will be closed on Friday; in addition, the stores will be open.

12. Ann wants to go to the party, yet she will stay at home.

- ☐ A. Ann wants to go to the party; instead, she will stay at home.
- ☐ B. Ann wants to go to the party; besides, she will stay at home.
- ☐ C. Ann wants to go to the party; later, she will stay at home.
- ☐ D. Ann wants to go to the party; perhaps, she will stay at home.

13. Charlie ran for help after the airplane crashed.

- ☐ A. Charlie ran for help previous to the airplane's crash.
- ☐ B. Charlie ran for help following the airplane's crash.
- ☐ C. Charlie ran for help as the airplane crashed.
- ☐ D. Charlie ran for help because the airplane crashed.

14. Linda went shopping; however, Sam stayed home.

- _____ A. Linda went shopping; for a time, Sam stayed home.
- _____ B. Linda went shopping; as a result, Sam stayed home.
- _____ C. Linda went shopping; of course, Sam stayed home.
- _____ D. Linda went shopping; in contrast, Sam stayed home.

15. The lights went out when the rain started.

- _____ A. The lights went out just as the rain started.
- _____ B. The lights went out; also, the rain started.
- _____ C. The lights went out; then, the rain started.
- _____ D. The lights went out every time the rain started.

16. The firemen arrived after the house burned down.

- _____ A. The firemen arrived; the house had already burned down.
- _____ B. The firemen arrived; soon, the house burned down.
- _____ C. The firemen arrived; next, the house burned down.
- _____ D. The firemen arrived; the house later burned down.

17. Amy is sentimental; therefore, she cries easily.

- _____ A. Amy is sentimental because she cries easily.
- _____ B. Amy is sentimental; in addition, she cries easily.
- _____ C. Amy is sentimental, though she cries easily.
- _____ D. Amy is sentimental; for this reason, she cries easily.

18. Rick drove to the store before he went to work.

- _____ A. Rick drove to the store; immediately, he went to work.
- _____ B. Rick drove to the store; previously, he went to work.
- _____ C. Rick drove to the store; soon, he went to work.
- _____ D. Rick drove to the store; next, he went to work.

19. Mother is coming to visit; therefore, we need to clean the house.

_____ A. Mother is coming to visit; on the other hand, we need to clean the house.

_____ B. Mother is coming to visit; at the same time, we need to clean the house.

_____ C. Mother is coming to visit; at that time, we need to clean the house.

_____ D. Mother is coming to visit; because of this, we need to clean the house.

20. We stayed at a hotel although it was more expensive.

_____ A. We stayed at a hotel, which was more expensive.

_____ B. We stayed at a hotel; even then, it was more expensive.

_____ C. We stayed at a hotel because it was more expensive.

_____ D. We stayed at a hotel even though it was more expensive.

21. We missed you while you were gone.

_____ A. We missed you every time you were gone.

_____ B. We missed you; for some time you were gone.

_____ C. We missed you; for this reason, you were gone.

_____ D. We missed you during the time you were gone.

22. Beatriz got sick while she was in Naples.

_____ A. Beatriz got sick; she was in Naples until then.

_____ B. Beatriz got sick; she was in Naples earlier.

_____ C. Beatriz got sick; she was in Naples recently.

_____ D. Beatriz got sick; she was in Naples at the time.

23. The store is going out of business, so everything is half-price.

- ☐ A. The store is going out of business; for that reason, everything is half-price.
- ☐ B. The store is going out of business; for a time, everything is half-price.
- ☐ C. The store is going out of business, but everything is half-price.
- ☐ D. The store is going out of business because everything is half-price.

24. Gloria studied French, so she understands it.

- ☐ A. Gloria studied French; she supposedly understands it.
- ☐ B. Gloria studied French; she probably understands it.
- ☐ C. Gloria studied French; she partially understands it.
- ☐ D. Gloria studied French; she consequently understands it.

25. Peter wanted to talk to Julia, so he arrived early.

- ☐ A. Peter wanted to talk to Julia; for a time, he arrived early.
- ☐ B. Peter wanted to talk to Julia; besides, he arrived early.
- ☐ C. Peter wanted to talk to Julia; for that reason, he arrived early.
- ☐ D. Peter wanted to talk to Julia; by that time, he arrived early.

26. I remembered his name when I saw him.

- _____ A. I remembered his name because I saw him.
- _____ B. I remembered his name the moment I saw him.
- _____ C. I remembered his name and then I saw him.
- _____ D. I remembered his name, since I saw him.

27. Harry is studying mathematics, yet he prefers science.

- _____ A. Harry is studying mathematics, but he prefers science.
- _____ B. Harry is studying mathematics, because he prefers science.
- _____ C. Harry is studying mathematics, as he prefers science.
- _____ D. Harry is studying mathematics, unless he prefers science.

28. Pam grows tomatoes although her garden is small.

- _____ A. Pam grows tomatoes only because her garden is small.
- _____ B. Pam grows tomatoes just where her garden is small.
- _____ C. Pam grows tomatoes even though her garden is small.
- _____ D. Pam grows tomatoes and now her garden is small.

29. George left before we arrived.

- _____ A. George left; we arrived immediately.
- _____ B. George left; still, we arrived on time.
- _____ C. George left; then we arrived.
- _____ D. George left; we arrived early.

30. Ann makes many spelling mistakes; therefore, she uses a dictionary.

- _____ A. Ann makes many spelling mistakes because she uses a dictionary.
- _____ B. Ann makes many spelling mistakes even though she uses a dictionary.
- _____ C. Ann makes many spelling mistakes; in addition, she uses a dictionary.
- _____ D. Ann makes many spelling mistakes; as a result, she uses a dictionary.

31. Marjorie sang on television when she was four.

- _____ A. Marjorie sang on television until she was four.
- _____ B. Marjorie sang on television; she was almost four.
- _____ C. Marjorie has sung on television since she was four.
- _____ D. Marjorie sang on television; at the time, she was four.

32. The class continued while the visitors sat down.

- _____ A. The class continued, but the visitors sat down.
- _____ B. The class continued, so the visitors sat down.
- _____ C. The class continued as the visitors sat down.
- _____ D. The class continued because the visitors sat down.

33. Uncle Roy visited us before he flew to India.

- _____ A. Uncle Roy visited us; earlier, he had flown to India.
- _____ B. Uncle Roy visited us; he had recently flown to India.
- _____ C. Uncle Roy visited us; as a result, he flew to India.
- _____ D. Uncle Roy visited us; following that, he flew to India.

34. Irene protested when the rent was raised.

- ☐ A. Irene protested, but still the rent was raised.
- ☐ B. Irene protested as soon as the rent was raised.
- ☐ C. Irene protested only if the rent was raised.
- ☐ D. Irene protested; as a result, the rent was raised.

35. John drove too fast; therefore, the police stopped him.

- ☐ A. John drove too fast and, as a result, the police stopped him.
- ☐ B. John drove too fast and, in time, the police stopped him.
- ☐ C. John drove too fast and, probably, the police stopped him.
- ☐ D. John drove too fast and, immediately, the police stopped him.

36. Margaret is intelligent; however, she does not show it.

- ☐ A. Margaret is intelligent, for she does not show it.
- ☐ B. Margaret is intelligent, unless she does not show it.
- ☐ C. Margaret is intelligent, but she does not show it.
- ☐ D. Margaret is intelligent, if she does not show it.

37. Jack wrote the letter; however, he did not mail it.

- ☐ A. Jack wrote the letter, though he did not mail it.
- ☐ B. Jack wrote the letter; unfortunately, he did not mail it.
- ☐ C. Jack wrote the letter; possibly, he did not mail it.
- ☐ D. Jack wrote the letter; later, he did not mail it.

38. The food was cold, yet we ate it.

- _____ A. The food was cold; we ate it instead.
- _____ B. The food was cold; we ate it anyway.
- _____ C. The food was cold; we already ate it.
- _____ D. The food was cold; we never ate it.

39. The company stopped the new service although it was helpful.

- _____ A. The company stopped the new service; still, it had been helpful.
- _____ B. The company stopped the new service; consequently, it was helpful.
- _____ C. The company stopped the new service; naturally, it was helpful.
- _____ D. The company stopped the new service; it had probably been helpful.

40. The sun came out after it rained.

- _____ A. The sun came out; then, it rained.
- _____ B. The sun came out; it rained later.
- _____ C. The sun came out; it had rained earlier.
- _____ D. The sun had come out already; soon, it rained.

41. Harriet needed a chair, so she looked in the next room.

- ☐ A. Harriet needed a chair, though she looked in the next room.
- ☐ B. Harriet needed a chair; for some time, she looked in the next room.
- ☐ C. Harriet needed a chair because she looked in the next room.
- ☐ D. Harriet needed a chair; as a result, she looked in the next room.

42. The students understood after they saw the movie.

- ☐ A. The students understood; they saw the movie later.
- ☐ B. The students understood; they saw the movie first.
- ☐ C. The students understood; as a result, they saw the movie.
- ☐ D. The students understood; in addition, they saw the movie.

43. I need to finish this work; therefore, I cannot go out.

- ☐ A. I need to finish this work; sadly, I cannot go out.
- ☐ B. I need to finish this work; consequently, I cannot go out.
- ☐ C. I need to finish this work; fortunately, I cannot go out.
- ☐ D. I need to finish this work; probably, I cannot go out.

44. Glenda went fishing although she gets seasick.

- ☐ A. Glenda went fishing and now she gets seasick.
- ☐ B. Glenda went fishing even though she gets seasick.
- ☐ C. Glenda went fishing; since then, she gets seasick.
- ☐ D. Glenda went fishing; as a result, she gets seasick.

45. We ate lunch while we waited for the train.

_____ A. We ate lunch and then waited for the train.

_____ B. We ate lunch and, finally, we waited for the train.

_____ C. We ate lunch and, simultaneously, waited for the train.

_____ D. We ate lunch and soon waited for the train.

APPENDIX D
DIRECTIONS FOR TEACHERS: TOEFL

1. Students may NOT use books, dictionaries, or note paper during the test.
2. Give out the answer sheets first. Have students write only their name on side 1, #1, their group (i.e., Beginning, Low Intermediate, Intermediate, or High Intermediate) on side 2 on the space for student number, and "E.L.I., UF" on side 1, #4.
3. Give out the test books in serial order. Do NOT permit students to help distribute the test books. Students are NOT to break the seal until instructed to do so.
4. Have students PRINT their name on the front of the test book and copy the test book number (in red on the front of the test book) onto their answer sheets in the space labeled "Test Book Number" (side 2).
5. Have students copy the test form (i.e., the letters and numbers on the front cover of the test book) onto the box labeled "Test Form" (side 2 of the answer sheet).
6. Instruct students to TRY to answer every question. If they are not sure of the correct answer, they should make the best guess they can and then go on to the next question.
7. Allow 45 minutes for the testing of Part III, Reading and Vocabulary Subtest. Do not answer any questions during the test.

8. Collect the test book first and then the answer sheets. No one should leave the room until ALL materials have been collected and counted. Do not permit students to help collect the material.

APPENDIX E
ITEM DIFFICULTY: CCT PILOT RESULTS

Form A				Form B			
<u>Item</u>	<u>Conjunction</u>	Natives (N = 18) <u>p*</u>	Nonnatives (N = 30) <u>p*</u>	<u>Item</u>	<u>Conjunction</u>	Natives (N = 18) <u>p*</u>	Nonnatives (N = 30) <u>p*</u>
1	although	1.00	.43	1	so	1.00	.79
2	yet	1.00	.46	2	but	1.00	.93
3	but	.94	.70	3	when	.94	.86
4	when	.78	.63	4	however	.94	.41
5	however	1.00	.53	5	yet	.94	.06
6	however	1.00	.66	6	although	1.00	.72
7	yet	.94	.23	7	before	.94	.79
8	although	.89	.36	8	therefore	1.00	.62
9	when	.72	.63	9	when	.22	.37
10	before	.83	.56	10	after	.77	.44

Appendix E (Continued)

Form A				Form B			
Item	Conjunction	Natives (N = 18) p*	Nonnatives (N = 30) p*	Item	Conjunction	Natives (N = 18) p*	Nonnatives (N = 30) p*
11	while	1.00	.90	11	when	.94	.65
12	so	.83	.70	12	while	1.00	.51
13	before	.83	.40	13	but	1.00	.58
14	after	.94	.53	14	but	1.00	.68
15	yet	.94	.76	15	before	.94	.65
16	however	1.00	.06	16	yet	.67	.06
17	yet	1.00	.26	17	after	1.00	.62
18	after	.83	.63	18	when	1.00	.82
19	however	1.00	.56	19	therefore	1.00	.86
20	but	1.00	.93	20	however	1.00	.31
21	when	.89	.47	21	however	1.00	.58
22	after	.94	.44	22	yet	1.00	.75

Form A

Item	Conjunction	Natives (N = 18) $\frac{p^*}{p}$	Nonnatives (N = 30) $\frac{p^*}{p}$
23	therefore	.83	.49
24	therefore	.94	.43
25	before	.94	.49
26	before	1.00	.30
27	so	1.00	.44
28	but	1.00	.40
29	therefore	1.00	.47
30	although	1.00	.47
31	while	1.00	.47
32	while	.94	.43
33	while	1.00	.40
34	so	1.00	.37
35	so	.94	.44

Form B

Item	Conjunction	Natives (N = 18) $\frac{p^*}{p}$	Nonnatives (N = 30) $\frac{p^*}{p}$
23	but	1.00	.24
24	although	1.00	.51
25	therefore	1.00	.13
26	after	1.00	.55
27	before	.94	.44
28	so	1.00	.58
29	after	1.00	.62
30	although	.22	.24
31	while	.94	.89
32	therefore	1.00	.75
33	although	1.00	.58
34	while	1.00	.82
35	so	1.00	.96

p* = proportion of individuals responding correctly

APPENDIX F
ITEM DIFFICULTY OF THE CCT

<u>Item</u>	<u>Conjunction</u>	<u>p*</u>	<u>Item</u>	<u>Conjunction</u>	<u>p*</u>
1	although	.74	20	so	.60
2	yet	.34	21	so	.84
3	however	.44	22	when	.72
4	however	.76	23	yet	.68
5	when	.50	24	although	.82
6	before	.66	25	before	.74
7	while	.90	26	therefore	.46
8	so	.72	27	when	.58
9	before	.50	28	while	.62
10	after	.34	29	before	.64
11	yet	.64	30	when	.60
12	yet	.40	31	therefore	.80
13	after	.32	32	however	.84
14	however	.58	33	however	.50
15	when	.72	34	yet	.52
16	after	.68	35	although	.48
17	therefore	.72	36	after	.46
18	before	.40	37	so	.62
19	therefore	.72	38	after	.54

Appendix F (continued)

<u>Item</u>	<u>Conjunction</u>	<u>p*</u>	<u>Item</u>	<u>Conjunction</u>	<u>p*</u>
39	although	.86	43	therefore	.48
40	while	.82	44	although	.52
41	while	.64	45	while	.68
42	so	.74			

p* = proportion of individuals responding correctly

Coordinate conjunctions = so, therefore, however, yet

Subordinate conjunctions = while, although, when, before, after

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BIOGRAPHICAL SKETCH

Inés Márquez was born in New York City on January 28, 1948, of Puerto Rican parents.

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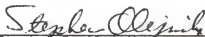
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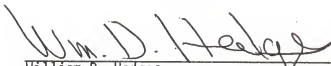
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